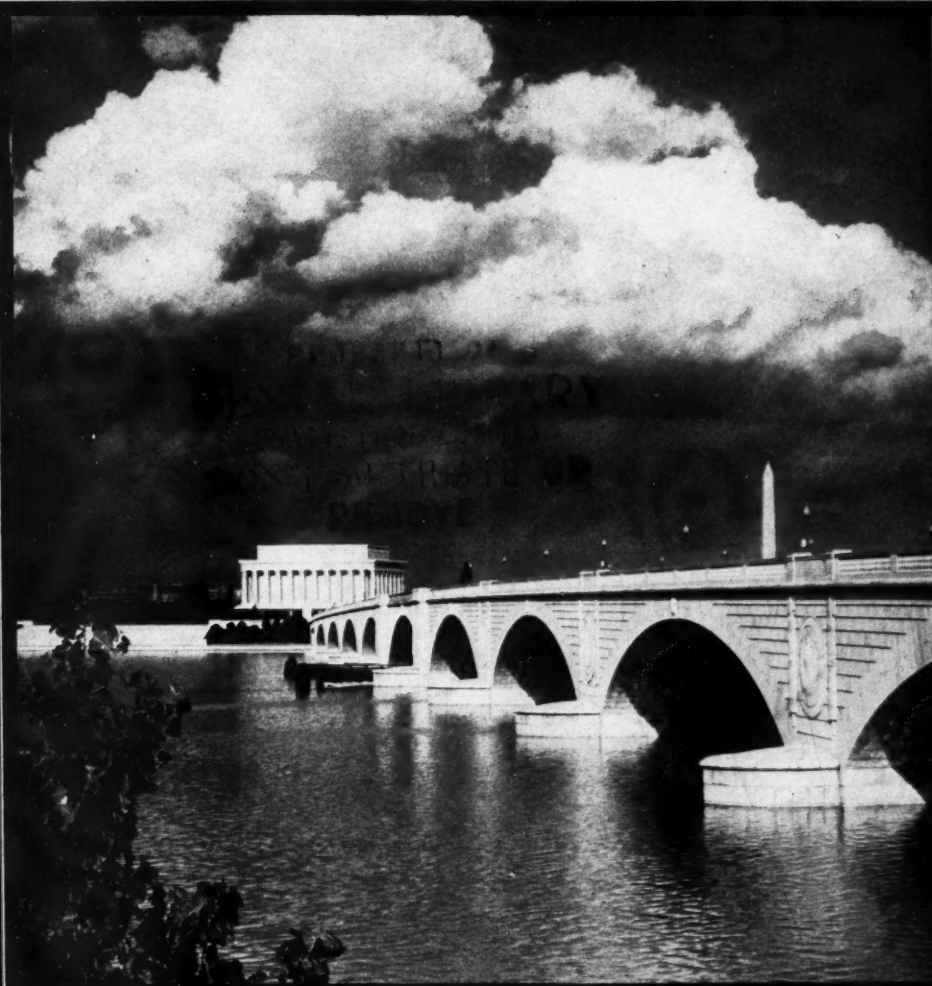


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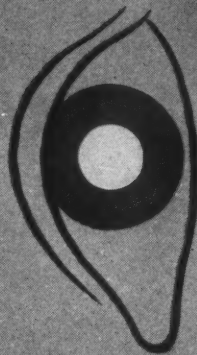
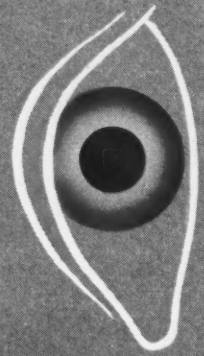


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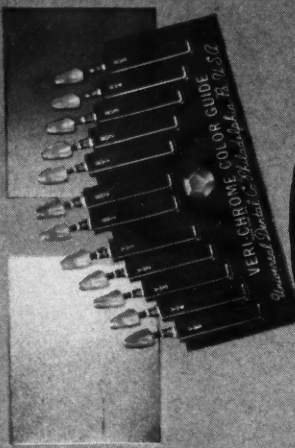
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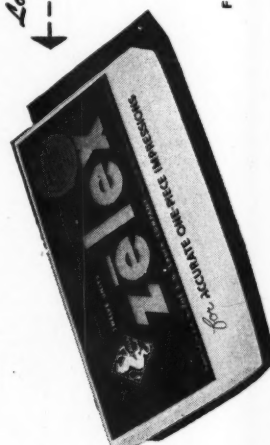
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THE DENTAL Digest

VOL. 52

NO. 4

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EDWARD J. RYAN, B.S., D.D.S., *Editor*

RUTH K. BARNHART, *Assistant Editor*
708 Church Street, Evanston, Illinois

WILLIAM I. OGUS, D.D.S. (George Washington University, 1917; graduate student at Northwestern University, 1923). Since 1924 Doctor Ogus has worked with electrosurgical techniques for dentistry and is director of a postgraduate school on the subject. He has contributed previously to this magazine, in April 1941, June and September 1942, and January 1945. He presents here the first of a series of articles on electrosurgery in dental practice, DESICCATION AND STERILIZATION OF ROOT CANALS.

LEOPOLD HIRSCH, D.D.S. (Columbia University, School of Dental and Oral Surgery, 1925) is in general practice. Doctor Hirsch's

About Our CONTRIBUTORS

contribution is a time-saving method of taking full impressions with alginates or colloids.

CHARLES C. ALLING (A.B., 1944, Indiana University) is a senior student in the School of Dentistry at Indiana, and will graduate in May. Mr. Alling discusses the

indications for an EMERGENCY TRACHEOTOMY that may be necessary in any dental office, and the involved anatomy, the operative technique, and the precautions to be taken.

CHARLES H. MOSES, D.D.S., L.D.S. (University of Toronto, Faculty of Medicine, 1924) emphasizes prosthodontics in his practice. Doctor Moses wrote for us last month on the factors that influence the retention of dentures. This month his presentation is the first installment of an article on A CONTROLLABLE, CORRECTABLE, AND PHYSIOLOGICALLY TOLERABLE IMPRESSION TECHNIQUE.

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Desiccation and Sterilization of Root Canals by Electrosurgery

WILLIAM I. OGUS, D.D.S., Washington, D. C.

An original technique is offered for both drying and sterilizing the root canal in one operation. The monopolar, monoterminal desiccation current is used in this electrosurgical treatment of the root canal.

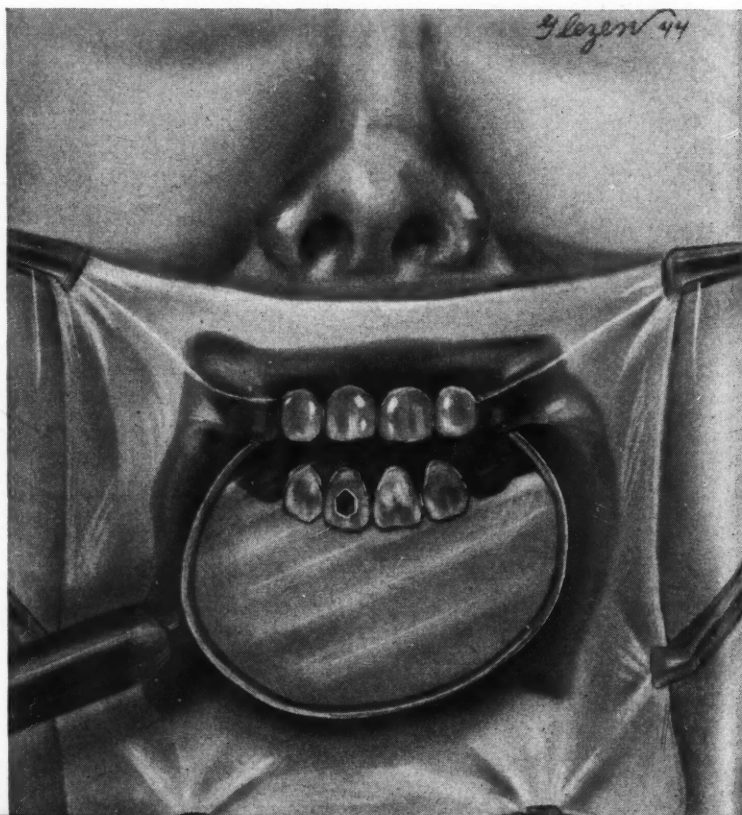
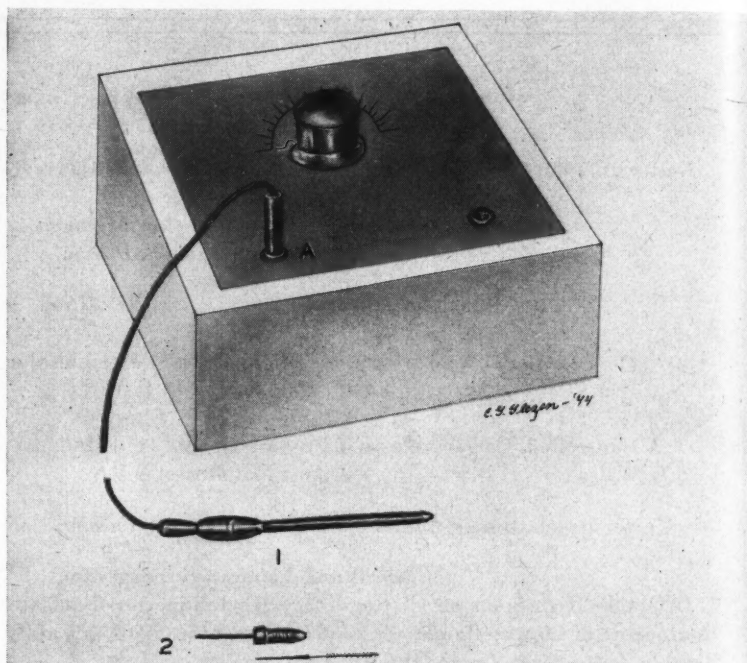
In next month's issue of this magazine, Doctor Ogus will discuss the use of the desiccating current in the treatment of gingival caries.

THE BEGINNING of the first world war found dentistry undergoing a transformation from ancient to modern, from a mechanical art to a branch of medical science. The cause of this change, the development of the roentgen ray to practical use, brought light to fields long in darkness. The findings of bacteriologists (Rosenow, Hartzell, Hatton, and others) established the theory of focal infection.

These scientific developments immediately split the medical profession into two lines of thought: One group asked for the elimination of all pulpless teeth. The other group asked for an opportunity to retain selected pulpless teeth which showed no periapical destruction roentgenographically. Dentists could offer no scientific proof to the medical profession that pulpless teeth were not a causative or contributing factor in focal infection, and the wholesale extractions that followed almost headed us toward becoming a nation of edentulous people.

Fig. 1—Apparatus for electric desiccation of root canals: (1) electrode handle; (2) Ogus chuck for holding the barbed broach. The monopolar, monoterminal current is used.

Fig. 2—The opening into the pulp chamber of an anterior tooth is made on the lingual. It is made on the occlusal of bicuspids and molars.



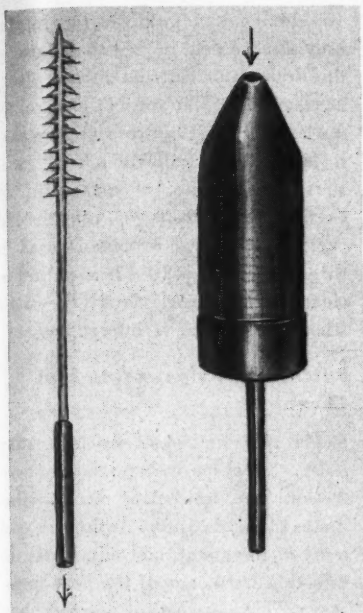


Fig. 3

Fig. 3—Left: Barbed broach and Ogus chuck. Center: Charged broach showing the direction of the current. Right: Beginning desiccation of pulp chamber.

Fig. 4—Continue the interrupted one-second applications of the current until the apex of the tooth is reached. This requires from ten to twenty applications.

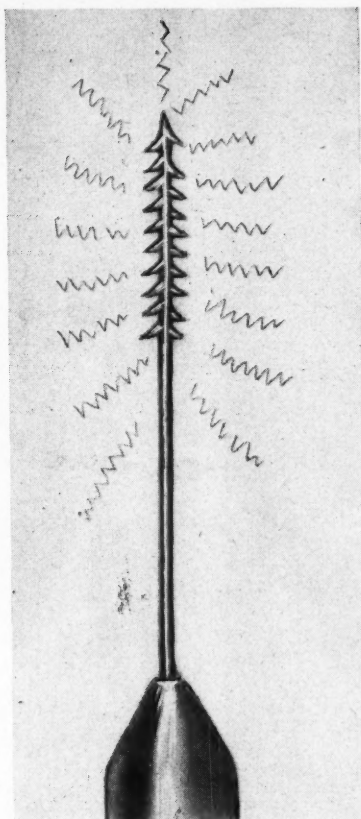


Fig. 3



Fig. 3

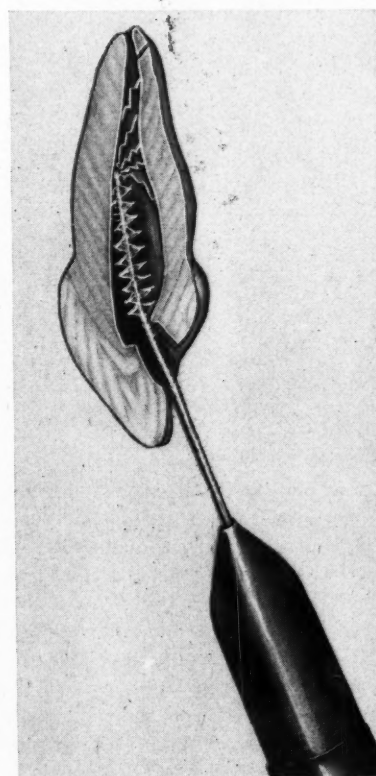


Fig. 4

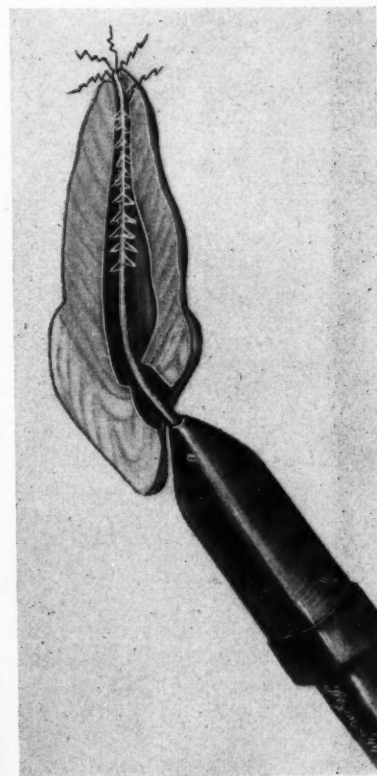


Fig. 4

Scientific work continued until we found that all ills do not originate from pulpless teeth. Many techniques for sterilizing and retaining these teeth have been offered by the dental profession. In 1906 Hermann Prinz stated: "There is but one efficient method of sterilizing root canals. Remove the teeth and boil them!" Today it is possible to sterilize root canals by "boiling" them without extraction of the teeth. By the insertion of a broach electrode into the root canal of the tooth, sufficient heat is generated to kill any bacteria that may be present not only within the root canal itself but also beyond the apex of the tooth.

Electric Desiccation

A technique is offered for both drying and sterilizing the root canal by one operation by means of an electric current (Fig. 1). The technique saves much time, and is scientifically sound inasmuch as clear culture studies are made before the root canal

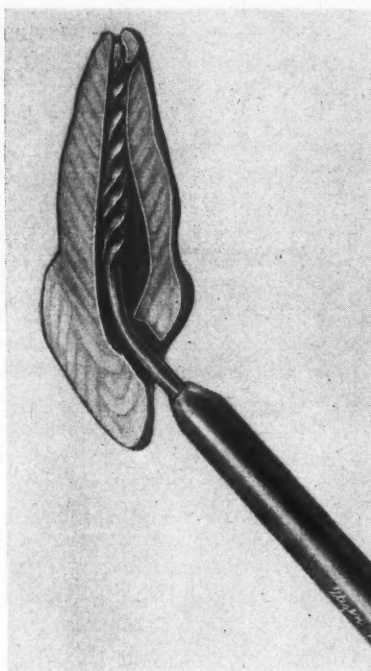
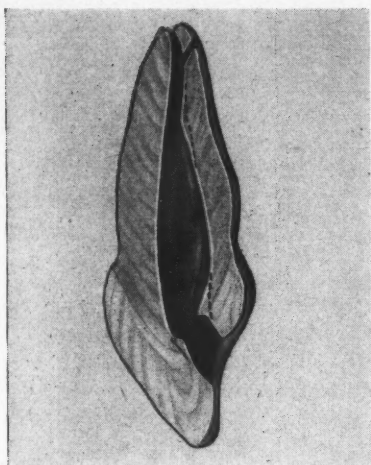


Fig. 5—Top: The root canal after the desiccation operation. Bottom: Opening the root canal wide by reaming.

is filled. This is an original technique by Doctor M. K. Baklor of Baltimore, Maryland, and is based on the development of the use of electrosurgery in dentistry by Doctor Elmer Brown of Trenton, New Jersey, and myself. This report is made on eleven years' work represented by three thousand cases treated by Doctor Baklor and myself. Roentgenographic and bacteriologic studies were made in all cases.

Three different currents are employed in electrosurgery: (1) acusec-

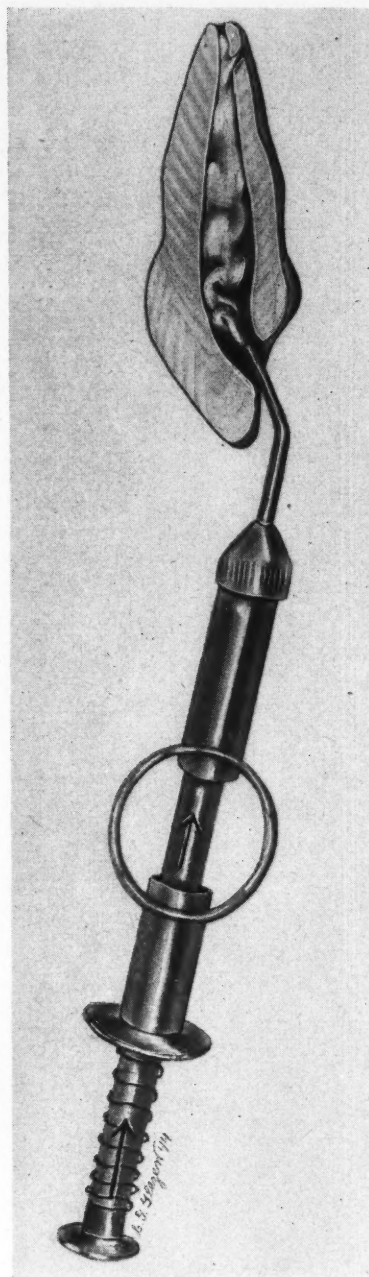


Fig. 6

tion (cutting); (2) coagulation; and (3) desiccation (monopolar and monoterminal). The definition of electric desiccation that is used here is: The dehydration of living tissues by moderate heat induced by the passage of a monoterminal, high frequency current through the tissue.

The desiccation current can be used for three distinct purposes in dentistry: (1) root canal sterilization; (2) plaque removal in leukoplakia; and

(3) removal of gingivae in gingival erosion. We deal here with the use of the desiccation current in root canal sterilization. The present control of power in the use of desiccation makes it possible to complete a root canal sterilization with a maximum of twenty applications of one second each. The barbed broach is used in this operation because it is an aid in cleaning the debris from the canal when the current is interrupted.

Putrescent Pulp, Acute and Chronic

The two chief problems in treating putrescent pulps are moisture and infection. The desiccation current eliminates the moisture by drying the contents of the canal, and eliminates the infection by means of the heat generated. The desiccation current produces a dry slough.

1. If the pulp is acutely inflamed, carry out the following procedure at the first visit:

a) Drill into the pulp chamber. The opening into the tooth must be on the lingual of anteriors and on the occlusal of bicuspid and molars. Open the pulp chamber wide (Fig. 2). The technique as carried out on an anterior tooth is illustrated here.

b) If suppuration is pronounced, wash the canal with warm chlorine solution and aspirate with suction. This

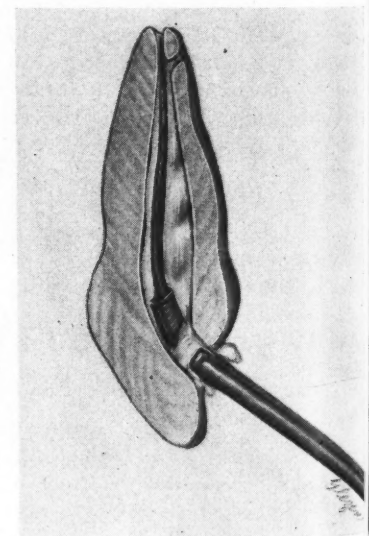


Fig. 6

Fig. 6—Filling the root canal. Left: Paste being inserted with the use of a gun. Right: Insertion of gutta-percha point.

especially should be done on young patients if there is marked edema when the canal is opened.

2. If the pulp is chronically inflamed, the following procedure is advised at the first visit:

- a) Open the pulp chamber as in the case of acute inflammation.
- b) Allow the gases to escape.
- c) Leave the pulp chamber open.

3. On the second visit, apply a rubber dam, open the canal the maximum amount, and remove the debris with a broach and blasts of warm air. Apply the broach electrode (Fig. 3) into the pulp chamber for one second; then interrupt the current for three seconds. Continue these interrupted applications until the apex of the tooth is reached (Fig. 4), which requires from ten to twenty applications of the current. Steam is seen to escape during the operation; thus all moisture is eliminated and the canal is completely dried.

Curet the debris from the canal with the same broach, and open the canal wide by reaming (Fig. 5). Insert a sterile cotton point, and seal the tooth for three to five days.

4. On the third visit, apply the rubber dam, remove the cotton point and place it into culture media, and seal the tooth.

5. On the fourth visit, if the culture report is negative the canal is filled by any accepted method (Fig. 6). If the culture report is unfavorable, the canal has not been treated properly. It then is necessary to apply the electrode again for no more than ten interrupted current applications. Again insert sterile cotton point, and seal the tooth.

6. On the next visit, take another culture specimen from the canal. Only a few cases require more than two applications of the desiccation current if the technique is used properly.

7. Restore the lingual of the tooth with gold or acrylic.

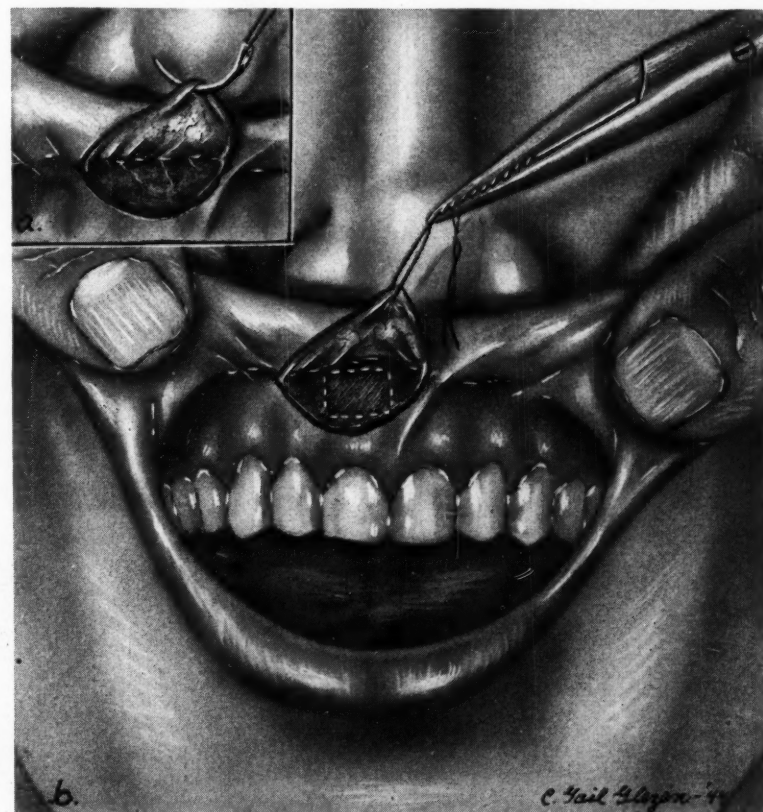
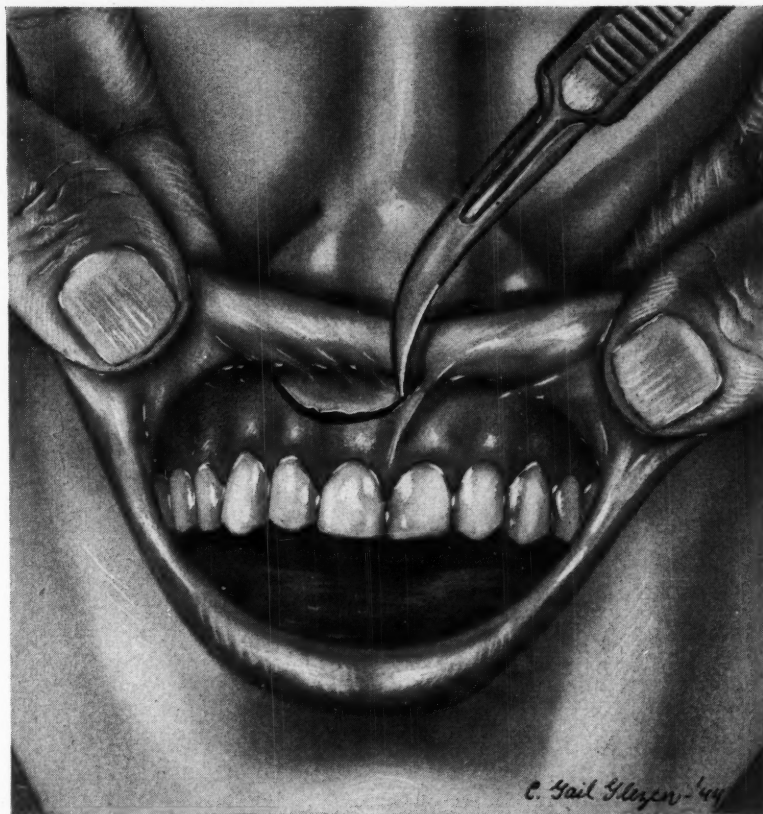


Fig. 7—The incision for the open method of removing a periapical cyst or granuloma following the electric desiccation treatment in the root canal.

Fig. 8—The insert (a) shows the retraction of the tissue covering the periapical growth. The interrupted line shows the outline of the box opening that is to be made.

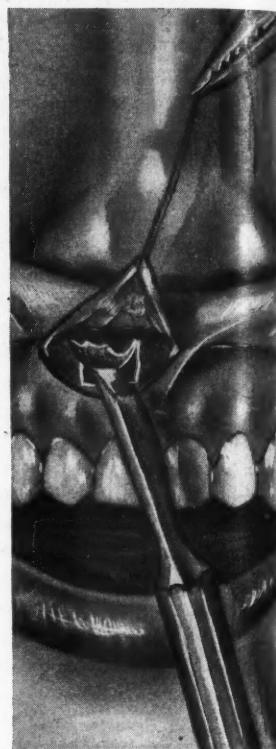
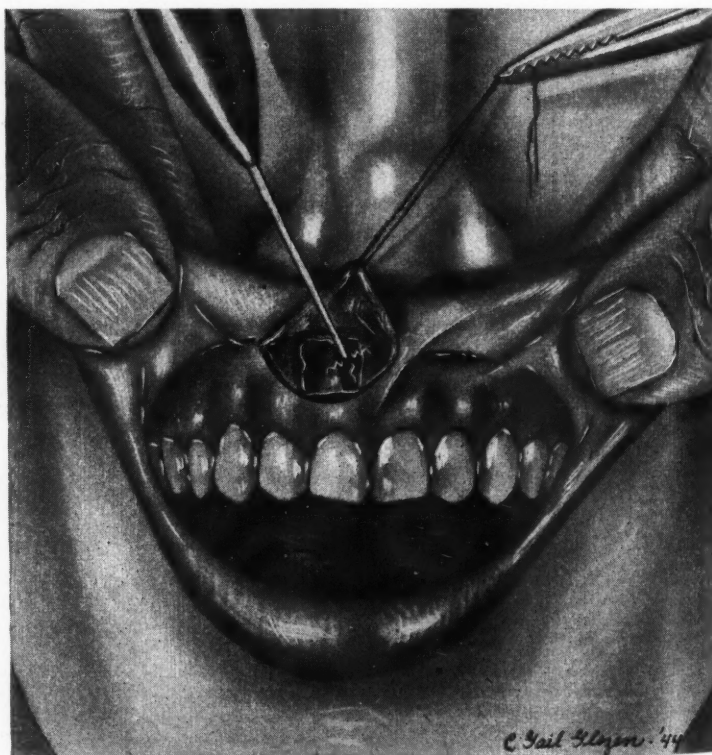
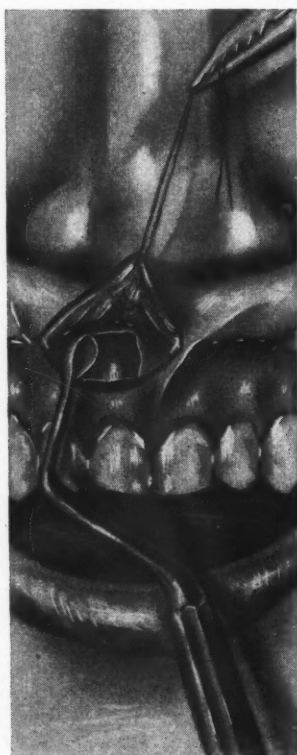


Fig. 9—Above: The initial opening (left) is made in the center of the area with a three-sided chisel, and the opening is enlarged (right) with a straight chisel and mallet. Below: The apex of the root is exposed after removal of the tumor (left), and the entire area is desiccated with the electric broach (right).



Removal of Vital Pulp

This entire operation can be carried out during one appointment.

1. Apply the rubber dam; and extirpate the pulp, using a local anesthetic.
2. Desiccate the canal with the broach electrode until the canal is thoroughly dry, and fill the canal immediately. If the sterile technique is carried out, there is no reason to anticipate an unfavorable culture report.
3. Restore the tooth with acrylic or gold.

Teeth with Periapical Granulomas or Cysts

1. On the first visit, open the root canal (lingual surface on anteriors, and occlusal surface on bicuspid and molars) for drainage, and leave it open.
2. On the second visit, using a local anesthetic, remove all contents of the root canal, and treat by desiccation and debris removal. Fill the root canal and seal the tooth.
3. The technique for removing a granuloma or cyst from the periapical region following the electric desiccation treatment of an anterior tooth root canal is shown in Figures 7 through 10.
 - a) Figure 7 shows the incision being made for the open method of removing the tumor.
 - b) Figure 8 shows the retraction of the tissue and the outline of the box opening.
 - c) The method of removal of the growth is illustrated in Figure 9, and the closing of the operative wound by suture in Figure 10.
4. The lingual surface of the an-

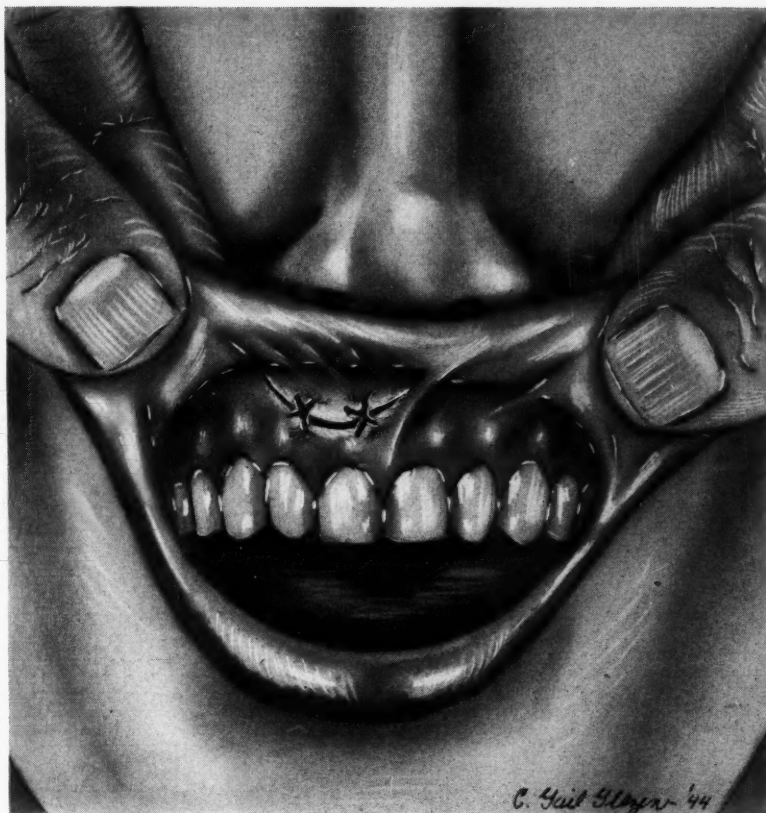


Fig. 10—The incision made for the removal of the periapical cyst is closed with two sutures.

terior tooth is restored on completion of the desiccation and surgical treatment.

Comments

Baklor's technique differs from mine in some respects. He does not use an anesthetic for any part of the desiccation operation. He believes that the patient can well tolerate the heat generated, and uses the patient's reaction as an aid in determining the penetration of the current. I use a

local suprapariosteal anesthetic for all root canal desiccation (Posner).

Baklor does not remove all small granulomas or cysts by surgical means, but treats them by roentgen therapy. He does remove the larger cysts and granulomas by surgical means, however. I remove all granulomas and cysts, regardless of their size, by surgery. I feel that the retention of epithelial cells within the bone may later lead to cyst formation.

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A Technique for Full Impressions using Alginates or Colloids

LEOPOLD HIRSCH, D.D.S., New York

A time-saving full impression technique that gives excellent results is offered. This technique is unusual in that the final alginate or colloid impression is taken in a preliminary yellow beeswax impression rather than directly in the tray.

SEVERAL METHODS for taking full upper or lower impressions with colloids are now in use. These consume a great amount of time in preparing trays. The following procedure, by which either an upper or lower impression can be completed in twenty minutes, gives excellent results.

Technique

1. Select an ordinary tray which covers the area desired in the impression (Fig. 1). This tray must allow enough room all over so as not to impinge on the tissue.

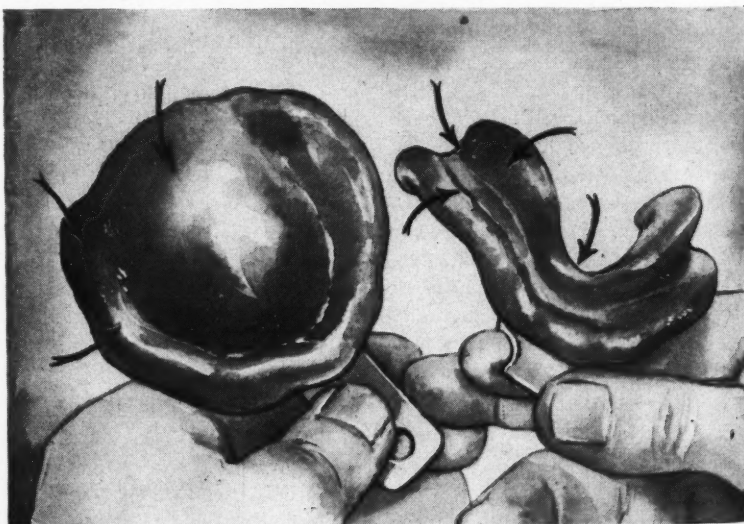
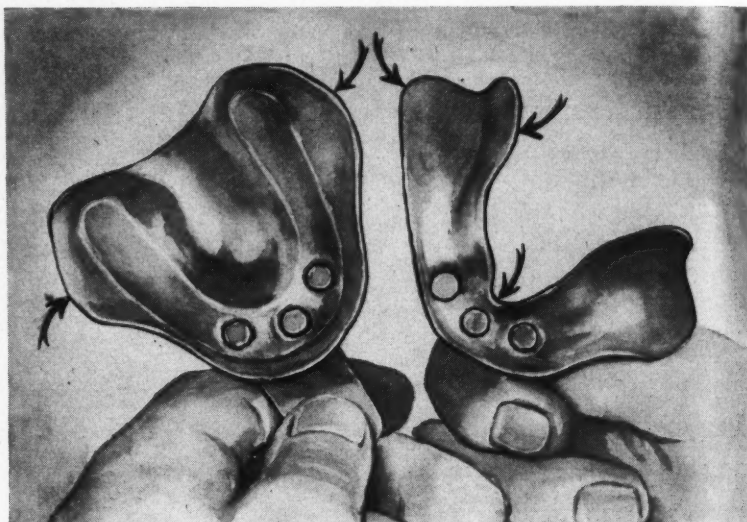
2. Soften yellow beeswax (supplied in sheets) in hot water until it is uniformly soft, and place it on the tray. Shape the wax a bit with the fingers and take a snap impression (Fig. 2). Have the patient go through the muscle-trimming movements with the lips and cheeks for the upper impression, and through the usual tongue movements for the lower impression.

3. Remove the wax impression from the mouth. While the wax is still pliable, eliminate the undercuts with the fingers (Fig. 3).

Fig. 1 (top)—Ordinary metal impression trays, upper and lower.

Fig. 2 (center)—Snap yellow wax impressions.

Fig. 3 (bottom)—Eliminate undercuts with fingers while wax is still pliable.



4. Chill the wax in cold water. After the original wax impression is chilled, add a few small pieces of black carding wax to the ridges of both the upper and lower impressions (Fig. 4). This prevents the tray from coming in contact with the tissue, and allows for a sufficient coating of colloid. It likewise prevents the margins of the tray from displacing the tissue.

5. Prepare the wax so that colloid will adhere to it. This is accomplished as follows:

a) Coat the wax surfaces with shellac (Fig. 5).

b) Use the compressed air spray on the shellac-coated tray for a moment until the shellac becomes sticky.

c) Pat the shellac-coated tray with a wad of cotton until it is well covered with cotton fuzz (Fig. 6). Enough cotton sticks to the shellac so that any colloid will stick to it.

6. Using any alginate or colloid with which you are familiar, mix in the usual manner and fill the cotton-coated wax tray. Place a little of the colloid mix under the upper lip and in the palatal vault. Then seat the tray and hold in place for three minutes. After the tray is in the mouth for one minute, permit the patient to repeat the usual muscle-trimming movements.

7. The resultant impression is perfectly muscle-trimmed and gives the finest detail without any tissue distortion.

8. Pour both models in stone and let them set, the base up. Do not invert them to get a smooth base; this tends to distort the impressions.

600 West 181 Street.

The Cover

THE COVER scene shows the Arlington Memorial Bridge from the Virginia side of the Potomac River. The Lincoln Memorial is in the background and the Washington Monument is on the right. The Five-State Postgraduate Clinic is being held in Washington May 24-27.

APRIL, 1946

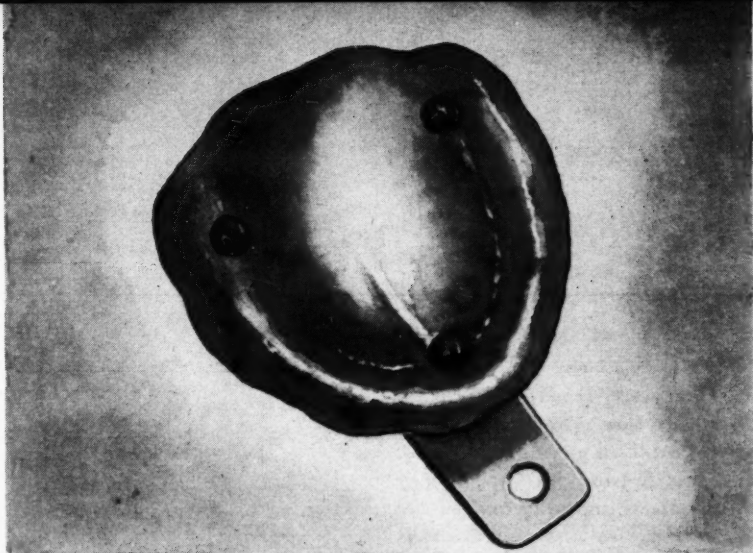


Fig. 4—Bits of black carding wax at the ridge of the impression prevent the tray from contacting the tissue and permit a heavier coating of colloid.

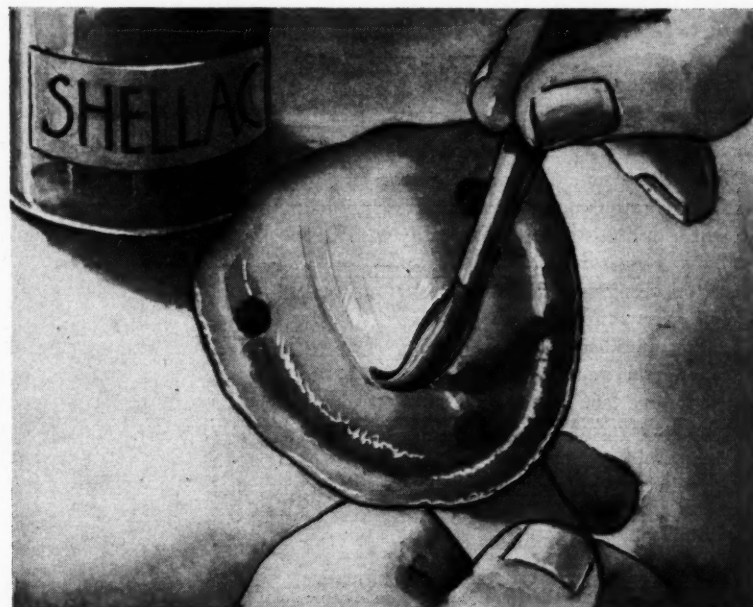
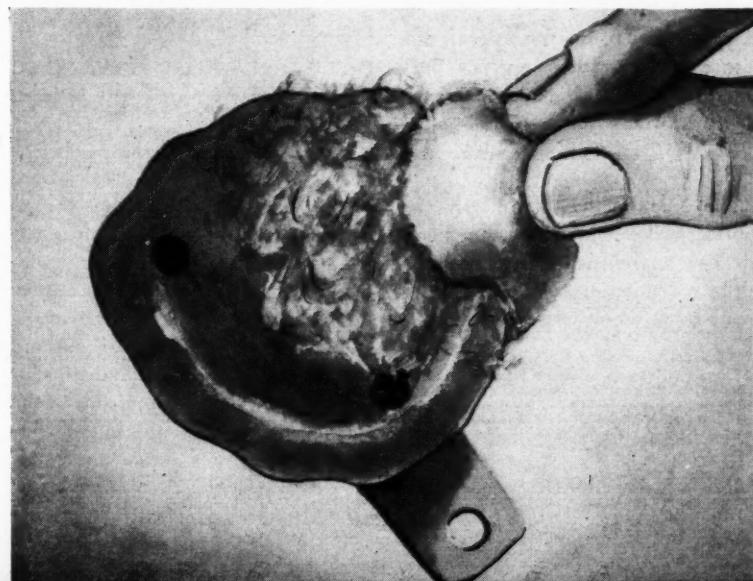


Fig. 5—Coat the wax surfaces with shellac to increase the surface adhesion.

Fig. 6—Pat cotton over the shellac surface to increase the adherence of the colloid.



Emergency Tracheotomy

CHARLES C. ALLING, A.B., Indianapolis*

An emergency tracheotomy is an operation that may at some time be indicated in any dental office. For this reason a knowledge of the involved anatomy and of the indications for the operation is invaluable to the dentist. These are presented here, as are the operative technique and the precautions to be taken.

THE DENTIST constantly practices his profession under circumstances that may require at a moment's notice the performance of one of the most spectacular operations known to the surgical world. Statistics are not readily available concerning the number of casualties resulting when patients in dental chairs suffer asphyxiation due to lodgment in their larynges of gauze packs, dental appliances, teeth, or pieces of bone. The dentist must, however, be always on the alert and institute suitable precautionary measures against such an accident, especially if the patient is unconscious.

Should the patient inhale a foreign body, it may pass the larynx and go down the trachea to the bronchi, and probably lodge in the right bronchus inasmuch as it has the larger opening and the bifurcation is set to the left of the midline of the trachea.¹ In this case a life-or-death emergency does not exist, but medical aid should be obtained promptly.

Anatomy

The area involved, primarily the suprasternal notch, is not complicated. The apprehension that must be felt by a dentist forced to do an emergency tracheotomy arises for a great

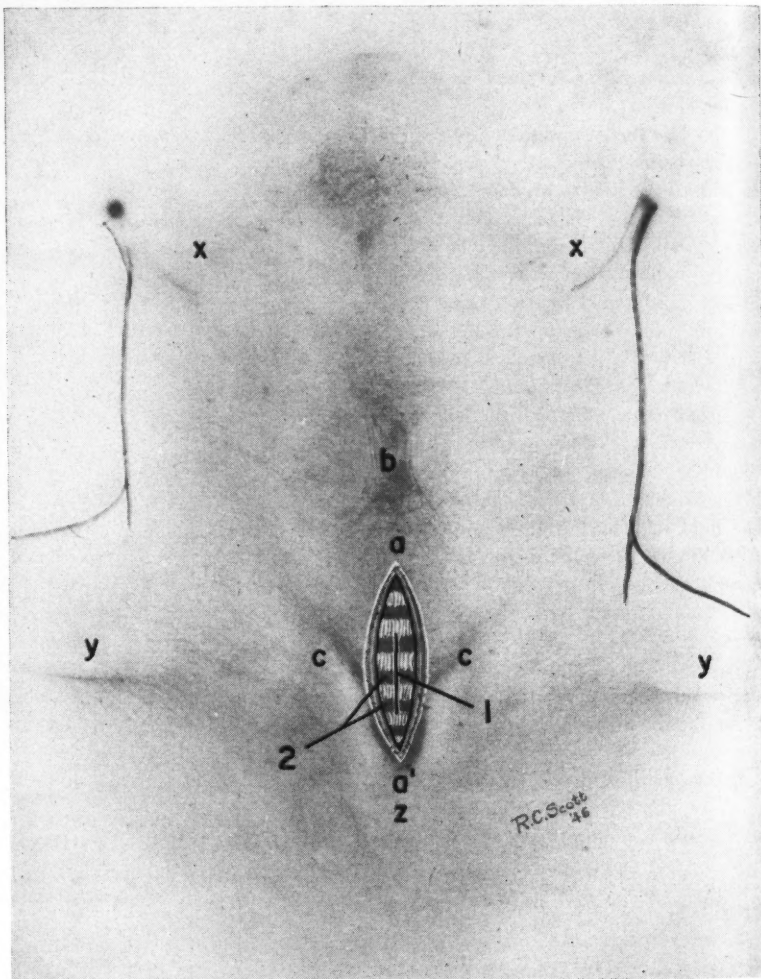


Fig. 1—(1) Tracheal incision; (2) tracheal rings; (a, a') soft tissue incision; (b) prominence of thyroid cartilage; (c) bulge of sternal head of sternomastoid muscle; (x) mandible; (y) supraclavicular fossae; and (z) area over manubrium.

part from subconscious associations with a homicidal slitting of a throat.

1. Topographically, the suprasternal notch is bounded inferiorly with the jugular notch on the upper border of the manubrium. The bulges of the sternal heads of the sternomastoid muscle, which originate on the manubrium below and on either side of the jugular notch, mark the lateral bor-

ders. The depression evident above the manubrium becomes more shallow as it approaches the larynx, and the superior boundary may be designated at the crest presented by the cricoid cartilage.

2. Anatomically, the suprasternal notch contains the trachea with the lobes of the thyroid gland on either side of it. The lobes are connected by

*The author would like to extend his sincere thanks to Mr. Richard Scott, photographer, who prepared the illustrations accompanying this article.

¹Lewis, W. H. (Editor): Gray's Anatomy, ed. 24, Philadelphia, Lea & Febiger, 1942, pages 1105-1108.

an isthmus crossing the trachea, generally in front of the third tracheal ring. Bilaterally and deep to the trachea, passing behind the lobes of the thyroid gland are the common carotid arteries and the internal jugular veins. Covering the lobes and isthmus of the thyroid gland is a venous plexus. Ramifications of the inferior thyroid veins are situated between the thyroid gland and the manubrium.²

3. "The skeleton of the larynx is composed primarily of three large unpaired cartilages, the *epiglottis*, *thyroid*, and *cricoid* cartilages. . . . The cricoid cartilage rests on the upper ring of the trachea and is held there by a continuation of the membrane which holds the rings of the trachea together."³ The cricoid cartilage at the superior boundary of the suprasternal notch is the only one with which one is concerned in an emergency tracheotomy.

Indications for Tracheotomy

When the patient ceases to breathe, the competence and confidence of the dentist may be devastated or bolstered by his training, background, and temperament. The patient's life depends upon immediate determination of the signs of obstructive laryngeal dyspnea. The dentist must not procrastinate. The indications for an emergency tracheotomy are:

1. The indrawing of the jugular or suprasternal notch. Jackson and Coates⁴ assert: "Failure to recognize the true meaning of this indrawing has resulted in the death of thousands for want of tracheotomy."

2. The indrawing of the supraclavicular fossae, intercostal spaces, epigastrium, and, in very young children, the indrawing of the sternum may occur.^{4,5}

3. Stridor is an indication of danger when accompanied by the laryngeal obstruction and the indrawing of the soft tissues.⁵

4. The patient begins fighting for air.

²Jamieson, E. B.: *Illustrations of Regional Anatomy*, Section II, ed. 4, Edinburgh, E. and S. Livingstone, 1937, pages 50-57.

³Hill, R. T.: *Anatomy of the Head and Neck*, Philadelphia, Lea & Febiger, 1946, page 58.

⁴Dental Preparedness Committee, *Lectures on Military Dentistry*, Revised Edition, Chicago, American Dental Association, 1941, pages 79-84.

⁵Barnhill, J. F.: *Surgical Anatomy of the Head and Neck*, Baltimore, W. Wood and Company, 1937, pages 379-382.

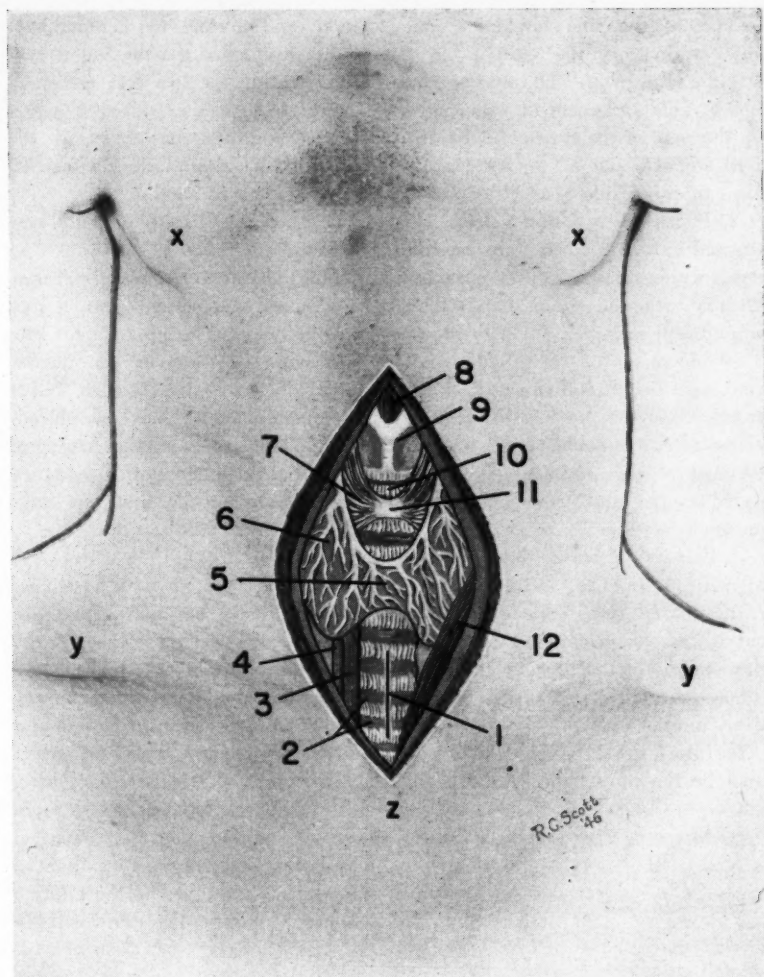


Fig. 2—(1) Tracheal incision; (2) tracheal rings; (3) common carotid artery; (4) internal jugular vein; (5) isthmus of thyroid gland; (6) thyroid gland; (7) cricothyroid muscle; (8) thyrohyoid muscle; (9) thyroid cartilage; (10) cricothyroid membrane; (11) cricoid cartilage; (12) sternohyoid muscle; (x) mandible; (y) supraclavicular fossae; and (z) area over manubrium.

5. Cyanosis is stressed by some authorities, although Barnhill⁵ states, "Strangely, cyanosis is not a marked or important symptom of obstruction."

Operative Technique

Members of the dental profession will not perform a tracheotomy except under the direst circumstances; therefore, a study will not be made of any of the formal operating room techniques. This emergency operation may be performed with the patient in the dental chair, on the floor, on a bed, and with any sharp instrument that is at hand without the least regard to asepsis. The dental practitioner whose professional knowledge embodies an understanding of the prob-

lem involved and its solution will be in a position to save the patient's life, which will not be endangered later because of a blind, confused, and faulty technique wrought by a lack of information.

Upon a decisive resolution that an emergency tracheotomy is indicated, the following technique (see illustrations) is to be followed through swiftly, smoothly, and with finality:

1. Keep the patient in a sitting position as long as possible to make breathing easier.⁵ If feasible without losing too much time, anesthetize the skin below the anterior prominence of the thyroid cartilage (Adam's apple) and above the suprasternal notch with some local agent.

2. Lay the patient back with his

head lower than the shoulder region. Be certain that the chin is in a straight line with the suprasternal notch. This arrangement will lengthen the part of the trachea to be utilized and will put all the vital structures to either side of the trachea.⁶

3. Incise the soft tissue below the thyroid cartilage to the suprasternal notch while steadying the trachea and larynx with the other hand. This wound will promptly fill with blood. This blood is for the greater part venous in origin and comes from the ramifications of the inferior thyroid veins. Bleeding would occur from the isthmus of the thyroid gland if it were severed and from the venous plexus located on the isthmus.

4. Palpate the blood-filled incision, identify the trachea, and incise three cartilaginous rings, endeavoring to cut below the cricoid cartilage and the isthmus of the thyroid gland, although the latter precaution is relatively unimportant.

5. Insert the cannula, which well may be the only hollow tube available.

6. Aspirate, drain, or soak up the

blood, and arrest any hemorrhage. If the isthmus of the thyroid is severed, ligating the two free ends will stop some of the bleeding. A pneumonic condition may arise if the blood that has flowed into the trachea is not removed by suction.⁵

7. If necessary, apply artificial respiration.

Rapid and complete relief will now be afforded the patient who, a moment before, was fighting for his life.

As soon as possible, the dentist should obtain medical aid so that a permanent cannula may be placed. All the authorities advise having a specially trained person in attendance with the patient the first few days following the operation.

Precautions

1. The dental surgeon should use the utmost care to incise through the anterior midline of the trachea, and not through the lateral walls or completely through the posterior wall and into the esophagus. This precaution is particularly pertinent when caring for a child, as the trachea is more movable, smaller, and is situated at a relatively deeper position than in the adult.¹ Care to cut in the midline will ensure missing the anterior jugu-

lar veins and the common carotid arteries which parallel the trachea on either side.

2. It is well to leave one or more cartilaginous rings uncut above the jugular notch of the manubrium. This precaution is observed so that later the cannula inserted in the incision will not be carried by the movable trachea down behind the manubrium to a dangerously inaccessible place.

3. If possible, one should not penetrate any of the three unpaired cartilages of the larynx; namely, the epiglottis, the thyroid, and the cricoid. The cricoid is the one most likely to be incised; and this may result in a laryngeal stenosis. If the incision is made through the thyroid cartilage or higher, a laryngeal stricture might occur, a complication that is almost uncorrectable.

4. As mentioned, immediate suction of the blood from the trachea will prevent pneumonia, which frequently arises from this condition. This is especially true in an emergency tracheotomy where ligating of the blood vessels does not occur until relief has been provided for the patient.

5653 Guilford Avenue.

Reducing Dislocations of the Temporomandibular Joint

JOHN W. HALLAM, L.R.C.P., M.R.C.S., L.D.S.

THE FOLLOWING technique was used in reducing six temporomandibular dislocations, five unilateral and one bilateral, one of which had been dislocated for three days. In no case was anesthesia required, and all were reduced with great ease.

Technique

1. The patient lies flat on his back, and the operator stands or sits behind the patient's head, the head be-

ing steadied between the operator's wrists.

2. As in other methods, the thumbs are placed on the lower molars, and the finger tips rest below the anterior end of the body of the mandible.

3. Downward pressure with the thumbs, followed by an upward tilting of the symphysis, will readily reduce the dislocation.

Advantages

1. The patient is in a position of

rest, and in consequence muscular relaxation is obtained more readily.

2. The head can be controlled conveniently.

3. The downward pressure can be exerted against the resistance of the patient's body.

4. Pressure is easier to apply with the arm straight.

—From *The Dental Record* 65:254 (November) 1945.

The Editor's Page

IN THE PAST several years the treatment of surgical shock has undergone a revolutionary revision. Traditionally shock has been treated by the application of heat. The present method introduced by Frederick M. Allen¹ is the use of cold. Cold retards the metabolic processes, inhibits pain, reduces exudation and toxin. As a corollary to this treatment of shock it was found that the refrigeration of tissues also produced anesthesia. The use of cold has been notably successful in surgery of the extremities. A Russian surgeon, S. V. Lobachev,² has reported a series of eighty-seven cases of surgery of the extremities done under refrigeration anesthesia. Lobachev, writing on the histology and bacterial flora of cooled tissues, gives this fundamental information:

"When the temperature of a compressed and cooled limb whose vessels are intact has reached a certain low, it maintains a level of plus 5° to plus 10° Centigrade or the minimal temperature with which life of a warm-blooded animal is compatible. Experiments in isolated tissues have shown that irreversible changes occur by cooling to minus 5° to minus 10° Centigrade or a temperature far below that at which death of the entire organism occurs. According to our observations, the blood of a limb cooled for anesthesia becomes concentrated without being damaged as a whole, and its formed elements remain morphologically intact. The lowering of the temperature reduces all vital activities of protoplasm and interrupts conduction in the nerves and sensation in the nerve endings. Slow and gradual cooling to obtain anesthesia is not accompanied by painful sensations. The pain sensibility of the limb is the first to disappear on cooling, followed by loss of the temperature sensation and finally by loss of tactile sensibility."

Restarski,³ a dental officer in the United States Naval Research Institute at Bethesda, Maryland, has reported a brilliant experiment on dental an-

esthesia induced by local refrigeration. (This does not imply freezing.) This project included tests on animals and human beings. Ten dogs were used in the preliminary test, and later sixteen enlisted Naval personnel submitted to cavity preparation in twenty-two instances. Restarski reports that in fifteen preparations complete anesthesia was obtained, whereas in seven preparations a mild degree of pain was experienced. Before undertaking the test on human subjects, Restarski made histologic studies of sections from the jaws of dogs that had been subjected to refrigeration at temperatures between 1° and 2° Centigrade for two-hour periods. His report on this phase reads:

"In no instance was any gross surface tissue change observed in either the maxillae or the mandible immediately after the removal of the applicators, after prolonged refrigeration.

"Subsequent comparison of histologic sections from refrigerated areas with those from nonrefrigerated control areas failed to show any difference in cellular structure of the gingival epithelium, gingival connective tissues, cortical bone, alveolar bone, blood vessels, nerves, periodontal membrane, or dental pulp."

The refrigerating unit used by Restarski consisted of hollow metal applicators of soft copper tubing fitted to the gingival tissues and held in firm position by standard rubber dam clamps. To these tubes the refrigerant was circulated by an electrically operated pump. The refrigerant used was composed of 65 per cent water and 35 per cent ethyl alcohol which was placed in an inner metal chamber that was surrounded by an outer chamber that held crushed ice and salt mixture. The temperature of the circulating refrigerant in the applicators was between 1° and 2° Centigrade. As would be expected, too rapid application or withdrawal of the refrigerant produced dental pain.

Restarski's preliminary report is encouraging. He suggests: "Trials on a large number of patients of all ages are needed to determine the effectiveness, limitations, and practicability of this type of local anesthesia in dentistry."

¹Crossman, L. W., and Allen, F. M.: Shock and Refrigeration, *J.A.M.A.* 130:185-189 (January 26) 1946.

²Lobachev, S. V.: Refrigeration Anesthesia in Surgery of the Extremities, *Anesth. & Analg.* 25:22-30 (January-February) 1946.

³Restarski, J. S.: Dental Anesthesia Induced by Local Refrigeration: Preliminary Report, *M. & D. Bull.* 17:111-113 (December) 1945.

A Controlled, Correctable, and Physiologically Tolerable Impression Technique*

C. H. MOSES, D.D.S., Hamilton, Ontario

The factors that influence the retention of dentures were outlined in the March issue of this magazine.¹ Two of these factors, adhesion by contact and atmospheric pressure, are recognized in the impression technique presented here, in which an attempt is made to utilize them as completely as possible. Virtually all impression techniques utilize these factors, some emphasizing one more than the other. I believe that the all-plaster technique, the plaster and compound, the paste and compound, and other similar methods, do not permit applying and testing each phase separately. Neither do they permit the correction of each part of the impression should it become necessary. A dentist must know how the completed denture will fit while the impression is being taken. The technique described permits making any necessary corrections at that time. In most of the other techniques it is impossible to evaluate the accuracy of the impression until the denture is finished.

THE TECHNIQUE presented here may appear to be involved and difficult; however, the explanation of the technique takes longer than the actual operation. The preliminary impressions are taken in less than five minutes during the patient's first visit; the markings on the impressions take about a minute; and the laboratory technician does the rest. Instructions to the technician should not be neces-

*This is the first of two articles on this impression technique. The second, which will appear in the May issue, will present the final steps in taking the lower impression and the steps in taking the upper impression.

¹Moses, C. H.: A Critical Analysis of the Factors in the Retention of Dentures, *THE DENTAL DIGEST* 51:136 (March) 1946.



Fig. 1—Massage the modeling compound gently on the lingual flange toward the tonsillar area.



Fig. 2—Locate the posterior fold corresponding to the posterior of the lingual flange of the denture.

sary for more than the first case. After the trays are made, the average im-

pression takes about a half hour. An hour and a half, however, should be

allowed for full upper and lower impressions to allow for difficulties. Difficulties occur in all techniques, but in the technique described here they can be checked when the impression is taken.

Preliminary Impressions

1. It is my practice to take preliminary impressions during the first visit. Thus the patient becomes aware that work on the dentures is already started, and financial arrangements may be made.

2. Trays are constructed from these impressions for taking the true impressions. After trying trays made from various materials, vulcanite or acrylic were found to be the best. The extra cost for these trays is insignificant in comparison with the results obtained.

3. Select oversize trays. The lower tray should fit well up on the ramus. The upper tray should fit rather loosely and should extend beyond the distal of the tuberosities.

4. Vaseline the oversize lower tray and overfill with modelling compound, preferably a high-fusing kind. If a low-fusing compound is used, it should begin to get stiff before it is introduced into the mouth. Rotate the tray into the mouth, pressing down gently in the anterior region first and then on the posteriors, with the thumbs under the chin and the fingers on the bicuspid areas. When the compound hardens a bit more, gently massage the compound on the lingual flange toward the tonsillar area (Fig. 1). Make certain that there is sufficient compound in the tray to reach that area. Hold gently but firmly for about two minutes until the compound is hard. Remove, and chill by dipping in cold water.

5. Take the compound preliminary impression of the upper, making certain that the tuberosities are included completely.

6. Trim off all undercuts with a sharp knife. Undercuts cannot be depended on for retention; they usually cause sore areas under the finished denture.

Outlining Impressions and Casts

1. The outline of the lingual of the

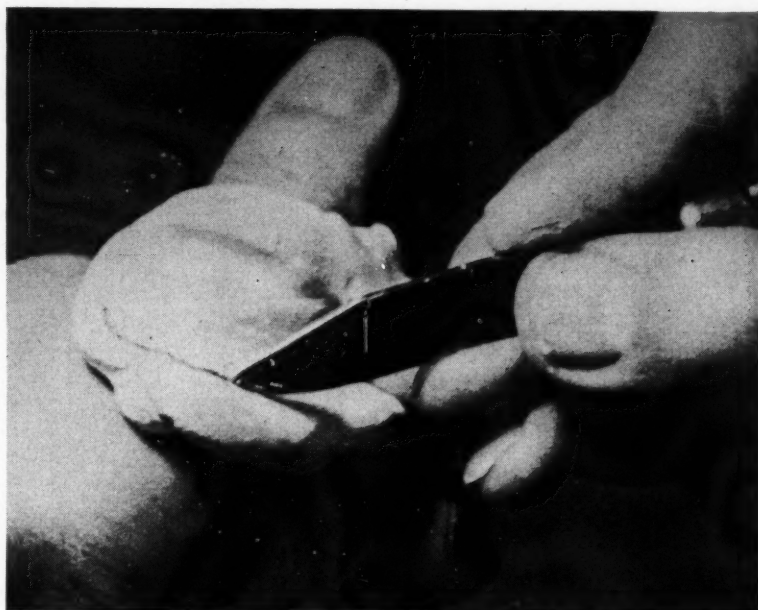


Fig. 3—Reproduce the outline seen in Figure 2 on the heels of the preliminary lower impression.



Fig. 4—Reproduce the outlines of the mucolingual folds on the cuspid regions of the lower impression.

lower tray is done on the lower preliminary impression and takes only a few seconds. The back of the throat is seen through a double archway, the anterior and posterior pillars of which enclose the tonsils. The anterior arch, the glossopalatine arch, extends down from the soft palate, curves to form the arch, and buries itself into the side of the tongue. When the tongue is at rest, it appears that the lingual flange

of the denture will be quite long. If the tongue is protruded, however, it pulls the lower part of the glosso-palatine muscle (the arch) forward, and the flange appears smaller.

Have the patient extend the tongue out of the mouth; insert a mirror or a tongue depressor between the tongue and the ridge, moving the tongue aside slightly to help locate the posterior of the fold which corresponds

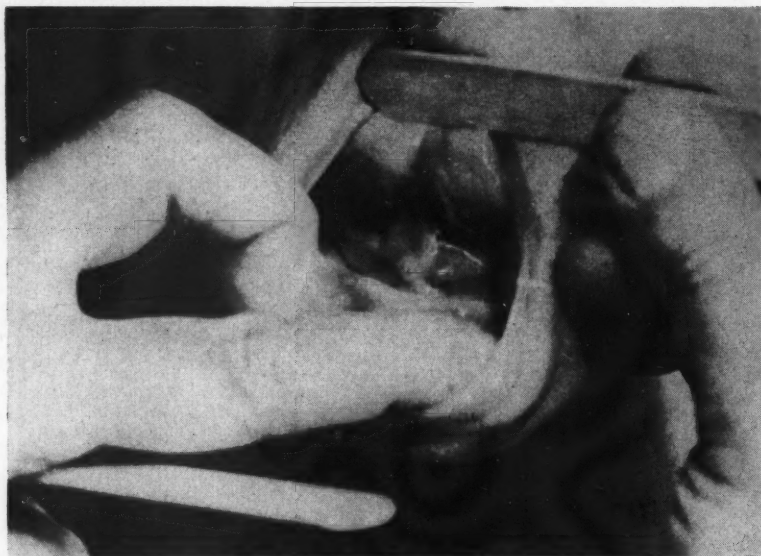


Fig. 5—Have the patient attempt to touch the nose with the tip of the tongue.

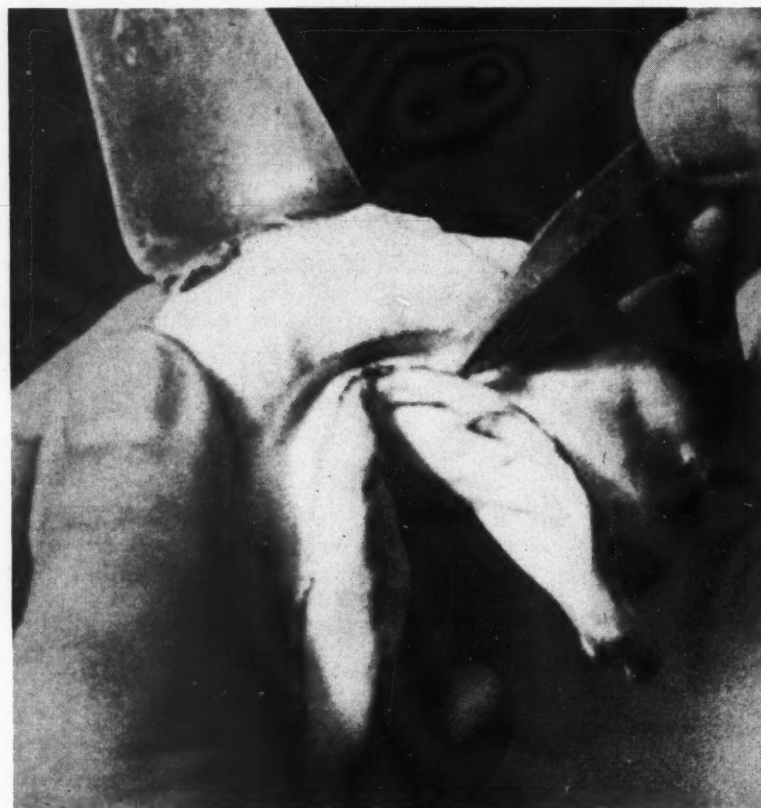


Fig. 6—Reproduce movement of membrane shown in Figure 5 on the impression.

to the posterior part of the lingual flange of the denture; and make a mental note of its location in relation to the pear-shaped retromolar pad on the posterior part of the ridge (Fig. 2). Using a sharp instrument, reproduce this outline approximately by a

deep scratch on the heels of the lower impression (Fig. 3).

2. So far we have spoken of the influence of the muscles on the impression. The folds of the mucous membrane, the contacting tissue, have as much and, in some cases, more in-

fluence in the molding of impressions than the muscles. This is particularly true on the lingual. The mucolingual fold affects the entire lingual border. In the posterior wall, which is formed by the tongue pulling the glossopalatine muscle forward, the attachment of the mucous membrane to the mandibular side makes the fold. This mucous membrane must have enough slack to permit freedom of the tongue in all its movements. When the tongue makes an extreme movement, it pulls the membrane taut. It is this tightening of the mucolingual and mucobuccal folds that often dislodges dentures. We must make allowance for slightly more than average movements of tongue, lips, and cheeks; therefore, we must be cautious when we speak of muscle trimming. It is often only trimming by pulling the mucous membrane taut.

3. Have the patient place the tongue in the cheek. The mucolingual fold on the opposite side becomes taut and outlines itself. Sometimes it almost reaches the crest of the ridge. Mark this outline approximately to the cuspid region on each side of the lower impression (Fig. 4).

4. Have the patient attempt to touch the nose with the tip of the tongue (Fig. 5). Mark this movement of the membrane on the impression (Fig. 6).

5. Only the posterior area of the upper impression is marked. An approximate determination of the posterior border is made. The landmarks to observe are the notches posterior to the two tuberosities and the dots, or fovea, in the center of the soft palate. When the patient says "ah," the soft palate moves up. Close the patient's nostrils with the fingers and have the patient blow through the nose; the soft palate moves down. This is the clue to the initial outline of the postdam area. Mark this on the impression (Fig. 7).

6. The models are poured, and the rest of the markings are made on the model (Fig. 8). If a commercial laboratory makes the tray, the following instructions should suffice for almost all cases:

a) The previously scribed lines on the impression now show up as raised ones. Scribe them deeply in the

stone with a sharp instrument so that they will appear on the vulcanite or acrylic tray after the processing.

b) Scribe around the entire mucobuccal margin on the upper model from tuberosity to tuberosity just slightly short of where it begins to fold.

7. The muscles of the lips and cheeks pulling the mucous membrane may not be strong enough to overcome a greatly overextended tray and its contents. This work should be reduced to a minimum. Overextension is one of the greatest causes of denture failure. Underextension also is dangerous, but it can be corrected more easily in the impressions of the folds. The only area that must not be made too short is the posterior of the lower tray; it should extend beyond the retromolar pads. Scribe the mucolabial fold of the lower from cuspid to cuspid.

8. A ridge will be seen which extends back from the first bicuspid until it becomes the buccal edge of the anterior part of the ramus. This is appropriately called the external oblique line.

9. Draw a line behind the pear-shaped retromolar pad, slanting backward and toward the lingual. The line will be just below the ramus and will be farther back on the lingual than on the buccal. The trays can now be processed.

Processing the Trays

As was stated previously, the trays should be made of either vulcanite or acrylic. The upper and lower trays should have handles. The handle on the lower is an aid in muscle trimming. This step requires that the tongue press the handle quite hard. The handle, therefore, must be of adequate size and have a concavity on the lingual. It should be about $\frac{3}{4}$ inch wide and $\frac{1}{2}$ inch high. There likewise should be a concavity on the labial side. These concavities makes it easier to grasp the handle. The handles should be so placed that they will not interfere with muscle trimming and mucofold molding (Fig. 9).

1. Try the trays in the mouth.
2. Pull the lips and cheek to see if the trays lift. If they do, trim on the

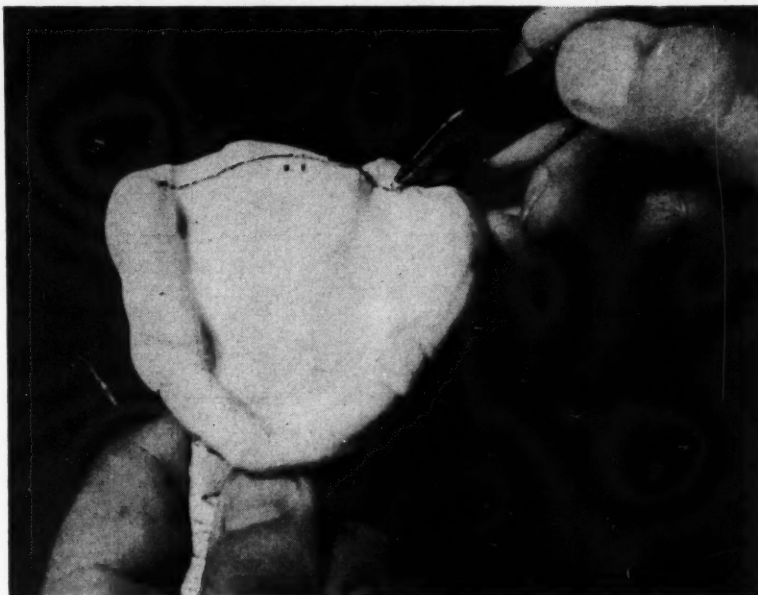


Fig. 7—Reproduce the initial outline of the postdam area on the upper impression.



Fig. 8—The lines scribed on the impressions show up as raised ones on the models. Scribe around the entire mucobuccal margin of the upper model from tuberosity to tuberosity.

lathe or with a large stone in the handpiece.

3. Have the patient protrude the tongue, thereby checking the posterior of the lingual flange.

4. Have the patient touch each cheek with the tip of the tongue to see if the opposite mucolingual fold does not lift the tray. Check the anterior lingual section by having the patient reach for the tip of the nose with the tongue.

5. Trim off wherever necessary. The tray should rest on the ridge without being dislodged.

The Lower Impression

1. If the ridge has parallel walls and an extremely thin crest, or if it is flabby,¹ a fissure bur, number 561, is used to cut through the tray at the crest of the narrow ridge or in the flabby area. In all other ridges, except class V (combination of two or more

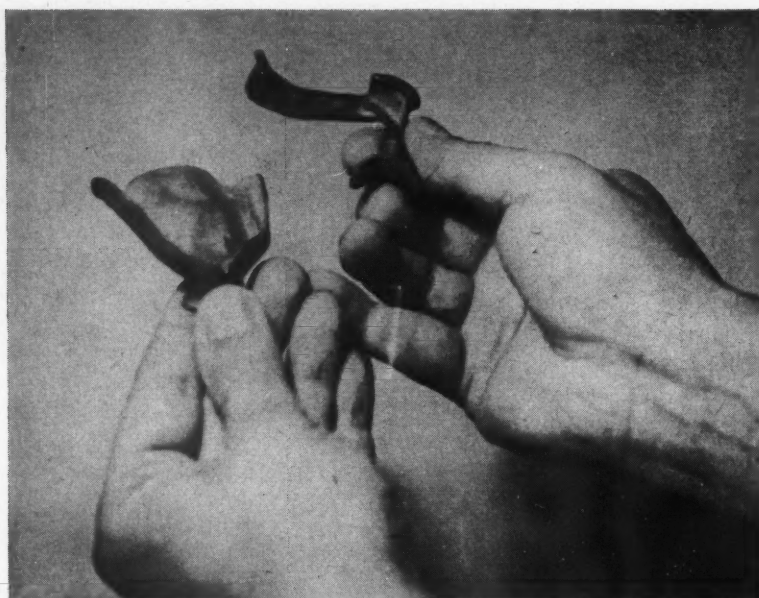


Fig. 9—The handles on the vulcanite or acrylic trays should not interfere with muscle trimming or mucofold modeling.



Fig. 10—Trace low-fusing compound, flamed, to the inside of the lower tray.

types) in which parts of the tray may have to be cut through, the impression technique is standard.

2. Use a good low-fusing type of compound, one which melts at 125° to 135° Fahrenheit. Warm it in the flame and trace it on the inside of the tray (Fig. 10). Depending on the size of the tray, trace the compound on 3 to 5 millimeters in thickness. Do not trace over the cut fissure if the ridge is thin-crested or flabby. This is

permitted to close over by itself. Some operators prefer to soften the compound in hot water, dry it in a towel, and place it in the tray.

3. Glaze the compound by passing the flame of a Hanau alcohol blowtorch over the softened compound, dip it into a pan of extremely hot water for a second, and insert into the mouth, pressing it lightly by holding the tray down with the finger tips in the bicuspid region. Do not press hard

enough for the tray to go through the compound. Remove from the mouth and drop the impression into the pan of cold water.

Compound Versus Other Washes

Advantages—1. I believe that flaming the compound lightly on the impression side achieves adhesion by contact with greater accuracy than any wash does. Most washes are placed in a prepared tray and then inserted into the mouth. The outcome of the entire impression depends on that one insertion; nevertheless, many things can go wrong with no chance of correction:

a) If some tissue is displaced during the taking of the impression, the finished denture will be lifted when the tissue recovers (like an elastic band between two glass slabs).

b) There may be a discrepancy causing a break in contact. Maximum contact is necessary between the denture base and the mucosa.

c) The material tends to run away from the periphery.

d) The saliva may wash away some of the material.

e) The wash material may have been too thin, causing voids.

2. I contend that when compound is flamed over lightly on the impression side, it acts as a wash. It is a wash without the disadvantages of the pastes and plaster. The chief difference, however, is this: The impression surface may be heated and reheated many times either by flaming or by dipping into hot water, each one becoming a corrected wash over the previous one. Application of this part of the technique alone will increase the adhesion.

3. Another advantage of the flaming and the dipping into hot water is that the ridge area and the peripheral area are done separately. Thus each can be controlled and perfected.

Technique—1. The compound is hard now. Flame, softening about 1 millimeter through the compound by passing the blowtorch rapidly over all the compound (Fig. 11). Temper by dipping in hot water, and insert into the mouth, holding it lightly. The hard areas penetrate the softened compound first, then the denser

soft tissues. Changes take place only within the limits of the softened 1 millimeter of compound. The rest of the compound is hard. Remove from the mouth in a few seconds and chill in the pan of cold water.

2. Soften the surface compound again by passing the blow flame rapidly to and fro over it. This time try to penetrate with the heat for a distance of about $\frac{1}{2}$ millimeter. Temper. Hold in the mouth lightly. Chill. On removal, more adhesion will become apparent because more intimate contact is being obtained. Many of the invisible discrepancies are correcting themselves. The excess compound flows toward the periphery, and will be taken care of later.

3. If the mylohyoid ridge or the mental foramina have to be relieved because of resorption of the ridge, this is done now with a suitable scraper.

4. The next step is repeated as often as is found necessary, about a dozen times usually sufficing. It is certainly five minutes well spent. Dip the impression into the hot water for about three seconds; place it into the mouth, holding it lightly for about five seconds; and dip it into the cold water for about five seconds. Repeat this performance until that phase of the impression is satisfactory. It will be noted that every indentation shows up in the impression. As far as I know, no other wash can correct itself in this way.

Functional Periphery

We are now ready for the maximum utilization of the other force, atmospheric pressure. If the adhesion is



Fig. 11—Flaming the compound lightly achieves better adhesion by contact than does an impression wash.

broken during mastication, the periphery should so seal the denture that air cannot get under it. Should air get under it, the pressure of mastication will force it out and the seal will immediately prevent it from entering again. This force is far more difficult to apply to lowers than to uppers because the lower has a relatively greater peripheral line in comparison with the small denture-bearing area, thereby creating more chances for air to get in.

A mistake that frequently is made in an attempt to create a "valve seal" effect is overextension of the periphery. This ultimately causes a loose denture because the tissues return to their normal position, dislodging the denture. Another mistake is overcom-

pression of the periphery while attempting to exclude the air like a suction cup. This causes an interference with the nourishment of the tissues, resulting in pathologic conditions and changes in the tissues under the denture. The dentures *must* be physiologically tolerable.

The term "peripheral seal" is, therefore, misleading. The tissues which form the periphery are not still enough in function to permit a complete and perfect seal. What is obtained by the technique described here is a "functional" periphery. The tongue, lips, and cheeks, wrap themselves around the periphery, thereby excluding the air and creating the seal.

508-510 Lister Building.

University of Illinois Announces Program of Postgraduate Courses

A TWELVE-WEEK general Postgraduate Course will be given at the University of Illinois College of Dentistry beginning May 1, according to an announcement made by Dean Allan G. Brodie. A grant of \$50,000 has been provided from the W. K. Kellogg Foundation to support this series of postgraduate courses.

The first course is designed primarily for returned veterans whose

dental practice in the Army was limited to certain phases of dentistry and who wish to obtain a short but intensive training in the principal fields of dentistry with special emphasis on the latest clinical and therapeutic advances. This course will be particularly valuable for dental officers whose undergraduate training was shortened by the accelerated wartime schedule and for those who are planning to

continue in advanced training in special clinical fields after the completion of the refresher course.

The curriculum will include didactic and clinical instruction in operative dentistry, crown and bridge, full and partial dentures, root canal therapy, periodontics, children's dentistry, and oral surgery. In addition, the recent biologic and medical advances

(Continued on page 229)

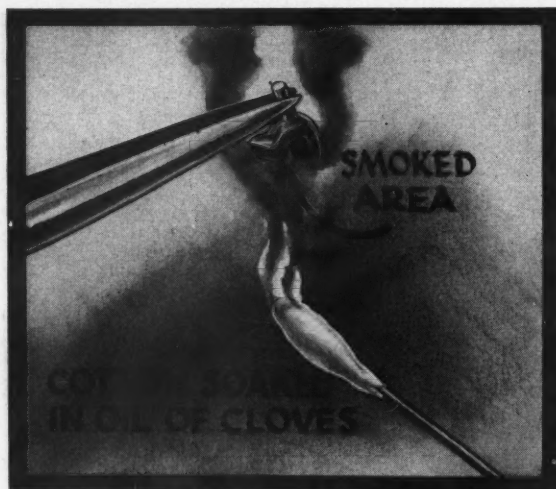


Fig. 1



Fig. 2

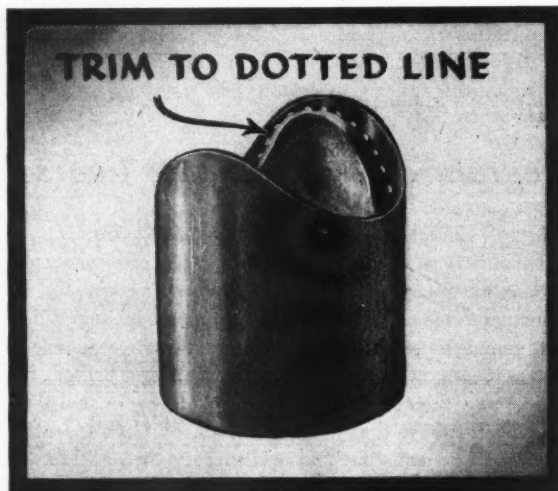


Fig. 3

Detecting High Spots on Castings

E. P. Cressler II, D.D.S., Newton, Kansas

Fig. 1—Place a pellet of cotton on the end of a throat swab applicator or any smooth, round stick. Soak the cotton in oil of cloves, and ignite the cotton. The resultant smoke will blacken the surface of the casting. On trying the casting in position, a high spot will be shown as a light spot on the smoked area. This method also may be used for locating high spots on inlays and on clasps on partial dentures or removable bridges.

A Technique for Repairing Broken Facings

Captain Frank Epstein (DC) AUS, Fort Mason, California

Fig. 2—A piece of baseplate wax (A) is adapted at the lingual to confine the impression material. A piece of pliable metal is cut and adapted to the buccal, including the teeth on either side of the broken facing (B). Holes are punched in this metal to help retain the impression material. An alginate impression is then taken. If a Steele's facing is being replaced, a paper clip of exact size and fit is placed in the slot in the impression. If a long pin facing is being used, wires are placed in the pin holes. Pour a model. Remove the wire, or wires; wax, and process in acrylic (C).

Facilitating Contouring of Copper Bands

Lieutenant A. B. Brustein (DC) AUS, Camp Atterbury, Indiana

Fig. 3—After securing a close-fitting band for the prepared tooth, contour the band roughly to the outline of the gingival part of the preparation. Fill the band with carding wax and take an impression. Cut the band to the final outline of this impression. This will give the exact gingival contour to the band. Remove the carding wax and smooth the cut part of the band. It is now ready for the final modeling compound impression. The dotted lines in the drawing indicate the border of the wax impression and the part of the band to be cut away.

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Protection of Thin Spots in Full Dentures

A. M. La Riche, D.D.S., Cleveland

Fig. 4—Frequently there are thin spots on the labial part of full upper dentures. Strips of adhesive tape are applied to these areas to protect them during polishing. When the final polish is to be made, the strips are removed and the underlying areas are touched lightly.

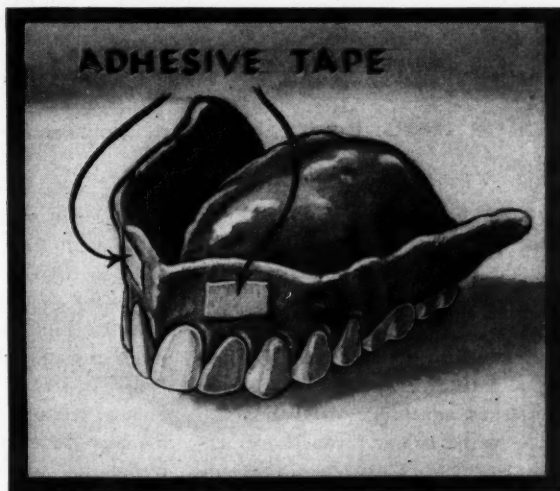


Fig. 4

Protecting Burs from Rust

Harold Crandall, D.D.S., Salina, Utah

Fig. 5—After cleaning and sterilizing burs, immerse them in a mixture of one part light machine oil to ten parts ether. The burs are removed and allowed to dry. The ether evaporates, leaving a thin film of oil on the burs to lubricate them and to protect them from rust. A cold cream jar with a screw cap is satisfactory as a container for the oil-ether mixture. It is necessary to add ether to the mixture from time to time to replace that lost through evaporation.

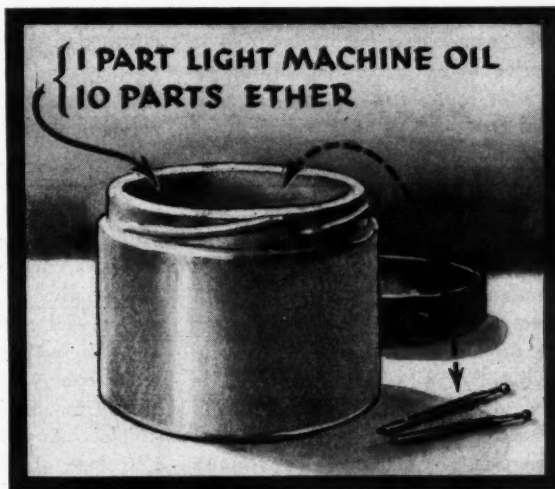


Fig. 5

A Modified Use for the Rubber Dam

Frank Sverdlin, D.D.S., Forest Hills, New York

Fig. 6—No rubber dam holder is necessary in this technique (A). Two ligatures (B) are applied to the teeth, and two cotton rolls (C) are placed over the rubber dam gingivally to hold it in position while making an anterior silicate restoration. A celluloid strip (D) is used to contour the restoration.

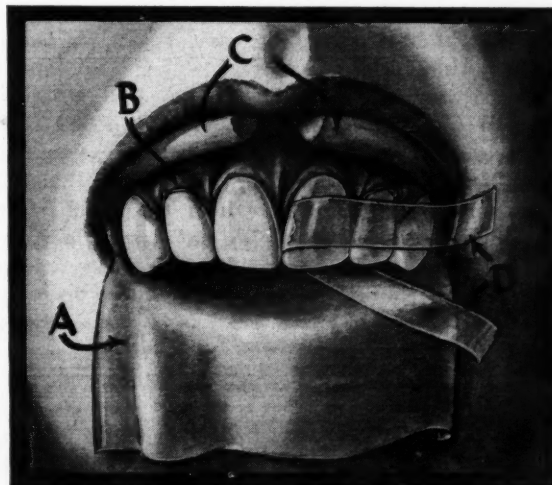


Fig. 6

technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time.

Turn to page 215 for a convenient form to use.

Send your ideas to: Clinical and Laboratory Suggestions Editor, THE DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

Some Principles and the Philosophy of Periodontal Practice

WALTER LEABO, D.D.S., Shreveport, Louisiana

WE HAVE seen the best and most skillful restorative efforts go for naught in the face of constant and progressive loss of the supporting tissues. It is true we do not have the answers to all these problems; but it is equally true that generally we have not taken advantage of what knowledge we have, nor given proper encouragement to the placing of the subject of periodontal disease, its prevention and treatment, upon at least an equal basis with the treatment and prevention of dental caries. The nutrition and local factors involved in periodontal degeneration, and the essential procedures in the diagnosis and treatment of any case of periodontal disease, follow.

Nutrition Factor

In the treatment of periodontal degeneration, nutrition plays an important and possibly a fundamental part. Every dentist should be in a position to discuss nutritional problems intelligently with his patients. He should be thoroughly informed as to what constitutes a sound nutritional program, and take every opportunity to convey that information to his patients.

The number of young people with advanced periodontal lesions of the complex and deep type, in clean mouths with little or no gingival irritation, is increasing. It is difficult to account for such distressing conditions except upon the basis of bad nutrition coupled with poor metabolism. To approach these cases from that standpoint can certainly do no harm, and we may be accomplishing something which will have profound bearing upon the future general health of the individual.

Local Factors

The mechanical, chemical, and bacterial irritations blend and combine to such an extent that usually all three exist at the same time, al-

though one of the three may have originated the inflammatory reactions in the tissues. In the practical treatment of periodontal disease it is essential that these forms of irritation be eliminated as far as possible.

Mechanical — Of the mechanical factors, trauma to the tooth itself is the most destructive. Occlusal trauma is not the only kind, although it is probably most universal and important in the production of the deep lateral and parietal lesions. There is no better way of producing complete destruction of the supporting bone structure, especially in the upper bicuspids, than the wearing of a poorly balanced removable bridge.

Chemical — Chemical irritations are those caused by the accumulations of food debris, especially the artificial and concentrated carbohydrates, around the teeth in contact with gingival margins, with the subsequent end products of fermentation and putrefaction.

Bacterial — Bacterial irritation is usually secondary, as in the case of streptococci and staphylococci. The spirochete of Vincent and the fusiform bacillus are likewise commonly found in the mouth.

Diagnosis

It is remarkable how many cases of periodontal diseases are discovered when roentgenograms are taken, when neither the dentist nor the patient was aware of any disturbance. Gingival recession or tissue loss are not at all essential or accompanying factors in many of the deepest and most severe lesions. This is especially true in the posterior teeth interproximally, and with extensive areas involving one surface only of the anterior teeth.

Any discoloration of the tissues showing infiltration of the capillaries should be investigated carefully with a suitable explorer to determine if there is detachment of tissue from the

cementum. In giving ordinary prophylaxis the interproximal areas in the upper molars should especially be probed and curetted inasmuch as observation indicates that more lesions originate here than in any other part of the periodontal tissues, and are less often detected. Another vital section is the lingual of lower molars. Tissue destruction does not have to extend far in this location to involve the bifurcation and give a bad prognosis.

When roentgenograms are made, extensive alveolar destruction is not difficult to detect, and usually is interpreted correctly; however, the slighted infiltrated crests and lesions of lesser depth frequently go unnoticed and sometimes disregarded. Any alveolar disturbance found upon the roentgenogram should be investigated clinically and corrective measures taken whenever possible.

Diagnosis of the presence of periodontal disease does not by any means cover the subject. It is necessary to determine the extent of the various lesions, the degree of bone destruction which may render the tooth unsuitable for treatment, the stability of the tooth, its relation in occlusion and whether it may be adjusted, whether a tooth must carry a bridge support, and any number of considerations in planning operative procedures for restoring missing teeth. These are matters in which experience, judgment, and a knowledge of what may be expected from treatment in a given case enter, and no formula may be laid down.

Corrective Measures

Occlusal Correction — The correction of the destructive action of trauma is fundamental to the treatment of all advanced alveolar loss. The techniques for the elimination of the occlusal trauma, and for the adjustment of a full complement of natu-

(Continued on page 215)

(Continued from page 210)

ral teeth in order to place the stresses in such direction as to do away with excessive lateral pressure, or torsion, are phases of periodontal care which need much more specific teaching and study, in view of their universal application to virtually all restorative work.

Prophylaxis—No part of periodontal practice carries greater responsibility than does prophylaxis. The profession generally has continued to delegate to an insignificant position what should be a most comprehensive preventive procedure.

Every part of the gingival attachment must be carefully probed and the fine curet frequently used for the removal of calcic deposits and other debris if inflammation is to be controlled and further tissue destruction prevented. Subgingival calculus often forms and can be detected before there is any visual indication of inflammatory reaction in the tissues. Regardless of what operative methods may have been employed to make the gingival tissues healthy, it may be maintained in that state only by careful elimination of irritations at definite periods. The skillful use of the subgingival curet is entirely essential.

Prevention—The ability to render comprehensive preventive service for periodontal disease is the foundation for treatment and eradication of the deeper and more advanced lesions. Failure to detect and take some measures to eliminate the early detachments of the periodontal tissues in the routine care of the mouth is usually due to the dentist's inability to utilize the small subgingival curet to the best advantage in exploring the gingival crevice. Much emphasis has been given the treatment of advanced periodontal lesions and too little to what is necessary to prevention, or to eliminate those areas which are just beginning to break down.

It is always necessary to discuss at length with every patient the importance of the toothbrush in the treatment and prevention of periodontal disease. We know that the interdental massage must be constantly carried on with both the bristles of the brush and either the rubber tip or

CLINICAL AND LABORATORY SUGGESTIONS

Form to be Used by Contributors

To: Clinical and Laboratory Suggestion Editor
THE DENTAL DIGEST
708 Church Street
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Explanation of Procedure:

Sketch:

\$10 will be paid to author on publication of accepted suggestions.



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toothpick. It is important that every dentist should be able to recognize damage done by injudicious use of the brush, and to intelligently explain to the patient why this is, and to institute corrective measures. Considerable time must be spent in giving brushing instructions while the patient is in the chair and by actual demonstration in the mouth.

Treatment Procedure

A systematic approach to any case of periodontal disease is essential.

1. Full mouth roentgenograms must be made. They are necessary to a study of the supporting tissues.

2. A clinical examination is made, at which time all the factors surrounding and governing the case must be considered as far as possible. Each tooth with advanced areas of destruction is examined with the objective of possibilities of treatment, and whether it may be retained or removed. Systemic and nutritional conditions should be considered, and many times the aid of a physician will be required. Teeth beyond treatment are usually removed before the beginning of operative work.

3. Premedication may often be necessary for the reduction of bacterial growth and inflammation the result of the prevalent spirochete and fusiform bacilli of Vincent.

4. A systematic, forceful, and effective means of teaching toothbrushing technique should be set up in every office, and the patient trained in the correct use of the brush as an instrument for the treatment of periodontal disease and not merely as a toilet accessory.

5. It is essential to correct occlusion and to produce as good a balance as possible at this stage. This may be made one of the most valuable and satisfactory procedures in the entire treatment of the case. If carefully carried out it is a source of the greatest satisfaction to the patient, and there will rarely be any question in his mind as to the effectiveness of the result. Whenever there is a feeling of discomfort on the part of the patient after correction, invariably something is wrong with the method employed.

6. All the foregoing has been in the

adapta

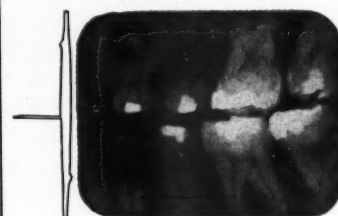
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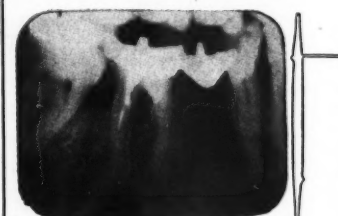
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nature of preparation of the field for systematic subgingival curettage:

a) Regardless of the extent of the lesions or their location, one section of the mouth should be selected to begin operation, every part of the gingival crevice explored and curetted when detachments are found, and calculus and debris removed about each successive tooth.

b) The depth of the lesion is compared with the roentgenogram and charted on the patient's diagram.

c) As skill increases in this operation it is rarely necessary to use an anesthetic. Experience indicates that patients are grateful if treatment can be carried on without an injection. After-pain or discomfort are so rare as to be almost negligible.

d) After initial curetting of all areas, the tissue reaction is observed to determine whether any particular lesions will require further operative interference. This may range from simple recuretting to excision of overlying tissues which it is evident will not satisfactorily contract or return to normal condition or will become a factor in furthering irritation.

e) By following these procedures we endeavor to let Nature's own forces of repair tell us what should be done to further assist in the restoration of the tissues to health.

7. Periodic prophylaxis, as previously discussed, is instituted.

—From *Texas Dental Journal* 64:47-55 (February) 1946.

Contra- Angles



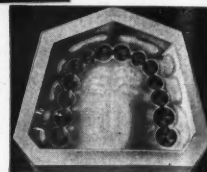
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among dental students over a period of eighteen months. These findings will be to the liking of young people who may now quote a hygienic reason for chewing gum. Naturally the gum manufacturers will be pleased to have the chance to tie up their products with the health appeal. The next six months should show the manufacturers utilizing the printed page and the radio waves to make gum chewing socially acceptable.

Many parents who have frowned on the grimaces of their gum-chewing children, who have fought a losing fight against the gum snappings and cracklings, who have fumed at the wads tucked in out-of-the-way hiding places, will be forced to face the eloquent health appeal. It will be mighty tough to be required to deny a youngster the privilege of chewing gum when he tells you that he is doing it not for fun but to preserve his dental hard tissues against caries. We can be sure that children will make the most of this newly won scientific excuse. The advertisers will see that children get the story even before the parents are aware of the enzyme-inhibitory effect of vitamin K on dental caries.

Before too long the manufacturers of soft drinks that are in disrepute among dentists because of their acid content will likely subsidize a piece of research of their own to uncover some agent that will help retard tooth decay. And then perhaps the candy makers will follow in line and look up a university to give them some scientific support and to suggest something that can be added to their products. The chewing gum, soft drink, and candy people are big business. What they do in the way of advertising will be done extensively and expensively. It is conceivable, assuming that the scientific "facts" are facts, that the manufacturers of these three products can do a better dental health educational job than has ever been done. It would be pleasant, however, to think that before the copy and script writers become too enthusiastic they consult with a group of dentists who would help them control their superlatives and extravagances of expression. Claim-

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Western Reserve University has undertaken a different kind of research to help in the mass control of dental caries. Doctor Thomas J. Hill, Professor of Clinical Oral Pathology, has undertaken a study in which he added penicillin to the tooth powder used by a thousand boys in a large industrial school. The rationale in the use of penicillin in this experiment was directed toward the reduction of the number of *Bacillus acidophilus* in the saliva. Doctor Hill found that the penicillin added to the tooth powder produced a notable decrease in the bacterial count. He has pointed out that he has no intention of a shotgun prescription to add penicillin to tooth powder:

"Additional work will be necessary to determine the best method of administration and dosage necessary. It is not probable that penicillin can be added to commercial brands of tooth powder or paste or that it will be desirable to do so, but it will be necessary to use such medication for a limited time and only on prescription."

Looking at the world of the future we can anticipate attacks on dental caries from many fronts. Fluorine will be added to our communal water supplies, vitamin K to our chewing gum, antibiotics to our dentifrices, and possibly other biologic agents to other items of food and drink. There is some danger that with all this "doctoring" we may be interfering with natural biologic defenses and tissue behavior. It is quite conceivable that with too much chemical interference we may be doing something to actually destroy and decompensate the finely drawn natural physiologic mechanisms. We might be producing a race of supermen with strong, glistening, white teeth, but it could be that we are actually undermining Man's native and natural defense mechanisms to other assaults. But Time will tell that story.

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"We wish to take this opportunity to thank your organization for the splendid cooperation and untiring efforts which helped so materially to make the Medical Department's record of this war so outstanding."

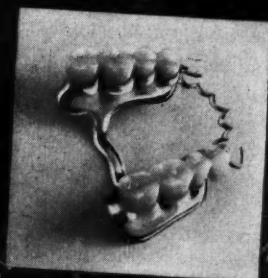
CURING PERSISTENT JAUNDICE



Dr. A. V. Migliaccio of Providence, R. I., in *The American Journal of Surgery*, Nov. 1945,

tells of an unusual operation, using Vitallium bile duct tubes to treat a patient suffering from persistent jaundice. The jaundice had reached an intensity until the patient "looked like a Chinese." An exploratory operation revealed that the common bile duct tube had been injured and the remnant had shriveled up. The ordinary flow of bile was impaired.

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excellent *Journal of Dental Research*. Not enough dentists are aware of the magnificent job being done by this publication without strong financial backing in the way of paid subscriptions, advertising, or subsidies from professional organizations. The *Journal of Dental Research*, edited by Hamilton B. G. Robinson and managed by J. Frank Hall, publishes the results of scientific investigations fresh from the source. These articles are of value to practicing dentists as well as to scientific workers in the laboratory.

In the future when we expect so many conflicting reports to be circulated regarding dental disease and its treatment, we can safely expect the *Journal of Dental Research* to express a sound, conservative, and scientific attitude.

Calling All Ducks . . .

I have lived these years without once realizing that there was such a thing as a National Duck-Calling Tournament. To my surprise, and without previous notice, I found myself one of the spectators (auditors perhaps would be more exact) listening to the finals in a national duck-calling contest.

I had attended the National Sports Show to get caught up on outboard motor developments and to see what was going on in the world of fishing tackle and plugs. It was with surprise that I met the contenders for the duck-calling championship. It was like a major sports event with radio announcers, spotlights, and music ready to crash out in the background.

The first contestant, a man introduced by a number but without a name, looked as if he might be a salesman on those days that he was not calling ducks. His suit was well pressed and he wore a pair of new spectacles that gave him an executive look. He was announced, strode purposefully to the microphone and there set up his variation of the duck in flight calling to his mate (or whatever ducks call to when they are being vocal). He received a full round of applause.

The second contestant was a little more the outdoorsman in his dress.

He wore a lumber jack. His duck calls were of a different tone color, pitch, and timbre—what these expressions mean in musical terms I have no idea. He seemed to receive a fuller measure of applause than the first contestant, perhaps because he looked more like the outdoor sort.

The third contestant suffered from living within an outgrown suit. Perhaps he had put on weight or the suit had naturally shrunk from the beatings of the war years. Whether or not this kept him from emitting the full duck calls I do not know, but he seemed to be the least inspired of the three.

The judges, who were hidden behind a screen to assure an impersonal verdict, gave the contest to the gent in the lumber jack.

Then the last year's champion was introduced. I did not catch his name, but presume he is the king of all duck callers. He even made a speech before his demonstration. His was the "Hello Ma, Hello Pa" type of thing that boxers sometime emit over the air. He then crashed through with two calls that I am sure would fool the wisest duck. The champ was in "good voice."

Of such is the news in the land of sports!

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Portrait of a General . . .

Before Major General Robert H. Mills retired as Chief of the Dental Division of the Surgeon General's Office, he turned over to the American Dental Association the unused portion of the money that had been voluntarily contributed by dental officers to pay for a portrait of himself. The amount of \$1200 was turned over to the American Dental Association War Memorial Fund and \$300 were turned over to the Association's Relief Fund.

The good wishes of the entire den-

tal profession go to General Mills upon his retirement. And the good wishes of the profession likewise are extended to his successor, Colonel Thomas L. Smith, who became the head of the Army Dental Corps on March 17.

Home from Four Wars . . .

Colonel George E. Meyer, who has served in four wars, has returned to dental practice in Chicago. Doctor Meyer, as a boy of fifteen, served in the Boxer Rebellion in China. He also served in the Philippine Campaign, with both the British and

American armies in World War I, and finally as Chief of the Dental Service at Barnes General Hospital in Vancouver in World War II.

Tonics and Sedatives . . .

Our esteemed contemporary, *The Journal of the American Medical Association*, is probably the best scientific or professional publication in the world. This journal, chock-full of scientific and practical articles for medical people, also believes in the good belly laugh. The Tonics and Sedatives Department carries some of the best humor in the country. Here is an example from a recent issue:

"Three ways to end a dinner conversation:

"1. Ask the lady on your right if she's married. Should she say 'Yes,' ask her if she has any children. If she says 'No,' ask her how she does it.

"2. Ask the lady on your left if she is married. If she says 'No,' ask her if she has any children.

"3. Ask the lady across from you if she has any children. If she says 'Yes,' ask her if she's married."

Orthodontics . . .

There are a large number of general practitioners in the country who are required to conduct orthodontic treatment. In the past, many of these men depended on commercial laboratories to supply them with appliances and even with suggested treatment procedures. Now we find a group of these general practitioners organizing themselves to foster the study of orthodontics.

This group, recently organized in New York as the New York Society for the Study of Orthodontics, expresses its intentions in these words:

"We, a group of dentists practicing orthodontics as an essential part of full dental service, organized this society, 'The New York Society for the Study of Orthodontics.' It is our purpose, by mutual cooperation, through meetings, lectures, clinics, study groups, courses of instruction, research projects, and all allied means, to further our knowledge and increase our skill; and we hope by helping to solve its problems, both scientific and socio-economic, to contribute to the

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advancement of the science and art of orthodontics."

Dentists who would like to receive more information regarding this new society may write to Leopold Hirsch, D.D.S., Secretary, The New York Society for the Study of Orthodontics, 600 West 181 Street, New York 33.

Good Neighbors Begin at Home . . .

The world is in an uproar. Nations are rattling their swords in each other's faces, and people within our own country are snarling at each other over prices, strikes, and political dis-

putes. It is easy, living in a world of confusion and name-calling, to get to the misanthropic state of thinking that people are no damn good. That is a bad way to be, and if we approach that level it is well to have us jolted by some force into reviving our faith in the essential greatness of people. Mere talking or preaching or listening to platitudes are not much help. The neighborly spirit in action is convincing.

Recently on a cold winter night, the son of a friend of mine was lost. The little lad, aged three, strayed away from home at dusk. When he did not return, his parents, in frenzy, carried on their own search, then called the police for aid. In the small community of a few thousand people there was quick mobilization by neighbors for action. The Boy Scouts began their search. Later in the evening fifty or more of the older men and young men who make up the American Legion in the community put on their boots and with their flashlights began the search of every nook and cranny in the town. All this was by voluntary action. No one was compelled to do any of it. It was a natural upsurge of the good neighbor spirit.

Sure enough, the little lad was found, asleep in the open and far from home. Fortunately no harm had befallen him, but everybody who had the pleasure of seeing the good neighbor spirit in action must have felt a reversion to his faith in the goodness of people.—E. J. R.

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University of Illinois Announces Program of Postgraduate Courses

(Continued from page 207)

of dentistry will be presented in a basic course of lectures and seminars by authorities in their particular fields. This will include a consideration of chemotherapy, oral bacteriology, fluoride therapy, diet and nutrition, oral diagnosis and correlated fields. Provision will be made for rotating instruction through the clinical fields.

Registration will be limited to twenty-four men. Veteran dental officers will be given preference but civilian dentists are eligible. The registration date is April 30. Tuition fee is \$75 for residents of the State of Illinois, \$150 for non-residents. This course comes under the provisions of the G. I. Bill of Rights. Veterans, if on terminal leave or already separated from the Service, must present their "Certificate of Eligibility and Entitlement" from the Veterans Administration when they register.

Applications for this course will be considered in the order in which they are received. They should be mailed to the University of Illinois College of Dentistry, 808 South Wood Street, Chicago 12, Illinois.

While the Kellogg grant will extend only over a three-year period, the University plans to continue the postgraduate program with its own funds after that time. The Kellogg money will be used primarily to augment the teaching staff of the College of Dentistry for the expanded program. While the University has given some postgraduate instruction for dentists in the past, this is the first formal program to be undertaken by the institution in this field. The University's College of Medicine, operating under a Kellogg grant of \$90,000, has been offering similar instruction in medicine for four months and has given training to nearly a hundred veterans. This program will be continued indefinitely as needed.

—From *The Fortnightly Review of the Chicago Dental Society* 11:9 (March 15) 1946.

In your ORAL HYGIENE this month

OCCUPATIONAL DISEASES AMONG DENTISTS

1. Are dentists more likely than the general population to develop the following conditions?

	YES	NO		YES	NO
a. Eyestrain	<input type="checkbox"/>	<input type="checkbox"/>	f. Peptic or duodenal ulcer	<input type="checkbox"/>	<input type="checkbox"/>
b. Upper respiratory infections	<input type="checkbox"/>	<input type="checkbox"/>	g. Chronic constipation	<input type="checkbox"/>	<input type="checkbox"/>
c. Silicosis or other lung diseases	<input type="checkbox"/>	<input type="checkbox"/>	h. Arthritis	<input type="checkbox"/>	<input type="checkbox"/>
d. Heart disease	<input type="checkbox"/>	<input type="checkbox"/>	i. Low back pains	<input type="checkbox"/>	<input type="checkbox"/>
e. Neurocirculatory disease (including varicose veins)	<input type="checkbox"/>	<input type="checkbox"/>	j. Postural defects	<input type="checkbox"/>	<input type="checkbox"/>
			k. Flat feet	<input type="checkbox"/>	<input type="checkbox"/>
			l. Skin allergies	<input type="checkbox"/>	<input type="checkbox"/>
			m. Nervous disease	<input type="checkbox"/>	<input type="checkbox"/>

2. What do you think can be done to lessen occupational diseases among dentists?

a. Shorter working hours	<input type="checkbox"/>	<input type="checkbox"/>	c. Improved working conditions	<input type="checkbox"/>	<input type="checkbox"/>
b. Regular exercise	<input type="checkbox"/>	<input type="checkbox"/>	d. More assistants	<input type="checkbox"/>	<input type="checkbox"/>
e. Any other suggestions					

3. I have practiced dentistry for _____ years.

Have you answered these questions?

Oral Hygiene editors are trying to find out how many of the dentist's physical ailments are really occupational diseases, and what, if anything, can be done to lessen their incidence. An explanatory article by Doctor Irwin B. Golden appears on page 606. Results of this survey will be published in subsequent issues of the magazine. To insure accuracy in the findings, a high percentage of replies is essential. If you haven't already done so, please fill in the card (bound in the April issue) and drop it in the mailbox. Your name does not appear on the card, and no postage is necessary. Oral Hygiene editors will be very grateful for your cooperation.

★ ★ ★
"How Courteous is Professional Courtesy?" is the question Marie Stifel asks on page 610. Is it often more embarrassing than courteous? Has it become impractical—an actual burden on the busy, overworked practitioners of today? You and your colleagues are the only ones who can answer this question.

★ ★ ★
Down in Venezuela, they're trying out a form of social security. You will want to read Doctor Focion Febres Cordero's explanation of the advantages and disadvantages of dental practice under this system. The article appears on page 614.

★ ★ ★
To meet the dental needs of children, authorities in the fields of education, health, and dentistry agree that children should be excused during school hours to fill dental appointments. Doctor Leon R. Kramer explains why in a short article on page 622.

Have you found the "perfect plan" for your dental office? If not, turn to page 624 and you may find just the ideas you have been looking for. Jerome Salzman, in the third of an interesting series of articles, tells how a six-room apartment above a store may be remodeled to provide an attractive office suite and a four-room apartment. This plan is well adapted to the needs of dentists in smaller communities, dentists of limited income, and dentists returning from Service who cannot find suitable office space.

★ ★ ★
"So You Lost a Patient . . ."—Doctor Robert H. Brening, Oral Hygiene's dentist-reporter says that 50 per cent of the people he's interviewed have recently "changed dentists." . . . Why? You'll find the answers in his article on page 630.

★ ★ ★
"Dentistry in the Veterans Administration"—George B. Fritz explains the plan by which private practitioners are to render, on a fee-for-service basis, a large proportion of dental services to Veterans Administration beneficiaries. You will be interested in his article on page 635.

★ ★ ★
"Know Your Druggist"—Doctor Charles F. Pope, Jr. says: "The neighborhood druggist is of inestimable value in supplying information . . . so necessary to establishing a practice . . . I suggest that you lean a little more on your druggist and profit from the partnership." You will find his article on page 644.

★ ★ ★
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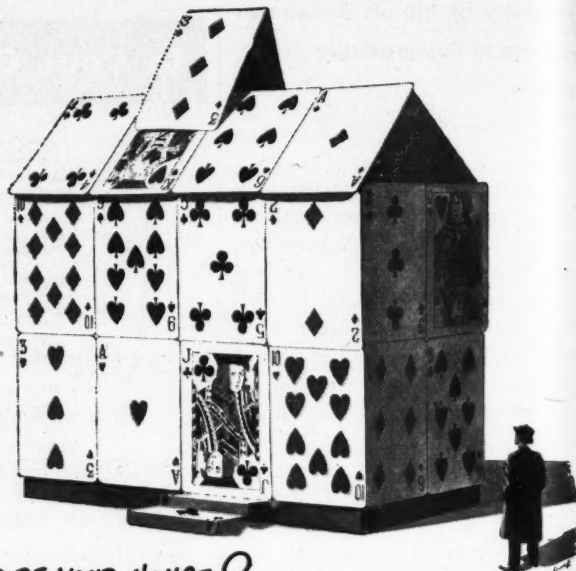
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